AUDIOMEDIA

PROFESSIONAL AUDIO IN PRODUCTION

PMC twotwo•6

PreSonus ADL700

DPA d:facto II

Steinberg Nuendo 6

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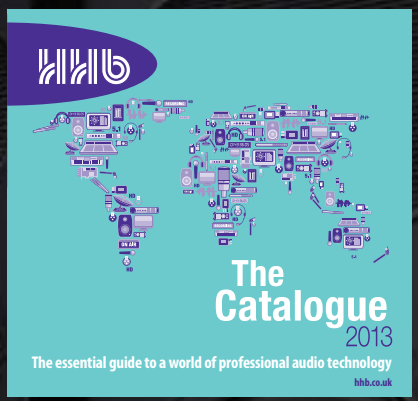

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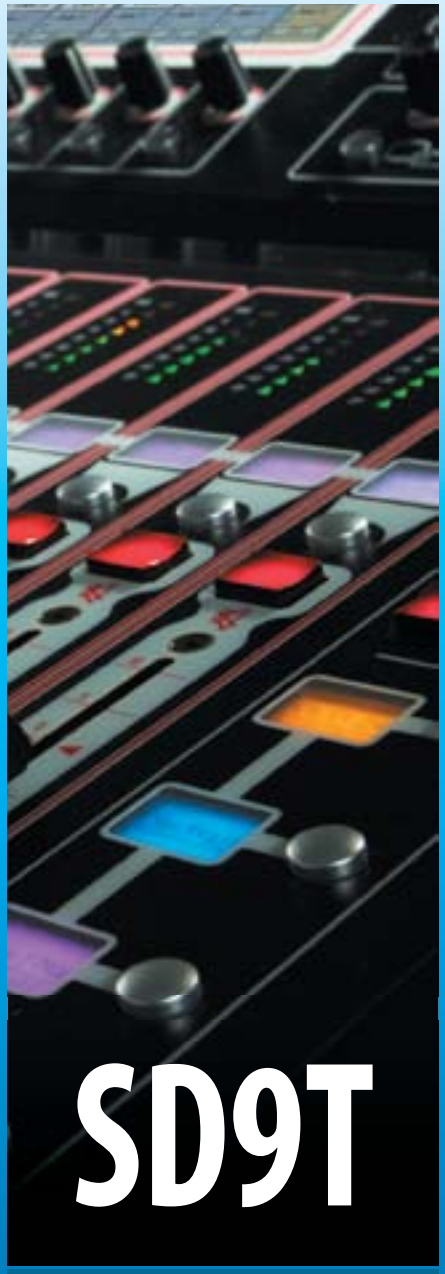

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SD5

SD10/SD10B/SD10T

SD8

SD9/SD9B/SD9T

SD11/SD11i/SD11B

Contents

Audio Media | April 2013 | Issue 269

NEWS

Technology News 8
Minnetonka releases a new update of its flagship AudioTools Server, SSL announces a new addition to its AWS series range in the guise of the 916, and Electro-Voice brings new power to its touring amps.

Recording News 12
Munro hits the spot for Italy's Art&Music, while Prism Sound helps the British Library with a mammoth digitising task, and SSL hybridises 360 Media in Lebanon.

Post News 14
Todd-AO welcomes in Atmos in readiness for an Iron project, Fairlight rEVOlutionises France Televisions regional studios, and Sony Pictures brings sound into the frame.

Broadcast News 16
SSL gives China a sporting chance at BTV, while Studer enables Korea to shop 24 hours a day, while TVNZ is left Beaming at the acquisition of an Artemis console.

Live News 20
KKL Luzern in Switzerland gets an update courtesy of WSDG and d&b, and the Culture, Media and Sport Select Committee get a grilling from the industry over the 2012 Olympics restrictions.

Game Sound 24
Journey scoops big at the BAFTAs for Games, while VGM celebrates 15 years of being a unique virtual community for videogame musicians.

What's Up UK 26
KEVIN HILTON questions whether the move to digital radio will be all its cracked up to be – or very welcome.

GeoFocus: Scandinavia 28
Midas makes a play for peace at the 2012 Nobel Peace Prize Concert held in Oslo, and the largest ski resort in Northern Europe, based in Sweden, amplifies its skiers' slope experience even further.

Special Report: Britannia Row 30
ANDREW GRAEME reports on Britannia Row's new audio course that aims to reinvent the way students approach live sound training.

REVIEWS

Tech Focus: Recorders 42
Portable, rack-mount, on your iPhone – whatever your fancy, or however you choose to do it, take your pick of recorders from this month's bumper-best.

Steinberg Nuendo 6 50
STEPHEN BENNETT wonders what more Steinberg could possibly offer over the last near-perfect release of 5.5's Nuendo – but soon finds out that it's everything and more that he never knew he was missing.

PMC twotwo.6 53
If money was not an issue, the twotwo would be on ALAN BRANCH's 'must have' list for accurate, unflattering sound representation in the studio.

DPA d:facto II 54
It's a tough market to make a real impact in, but DPA's live offering might just break through with a bold display of novelty and the very best sonicality, says BEN BURNS.

Dave Hill Designs Titan 56
NIGEL PALMER sits up to take notice of Dave Hills' latest release, the chameleonic compressor like no other.

PreSonus ADL700 57
Centred on Anthony DeMaria's lauded ADL 600 discrete Class A tube pre-amplifier, the ADL 700 is a reasonably affordable option in the premium (and premium priced) channel strip marketplace, says ROB TAVAGLIONE.

FEATURES

Final Cut: Budget Sound 32
The big screens can do it, no problem. But what about where money is tight? JERRY IBBOTSON talks to three small-time film makers, and finds out how they meet the demands of creating good quality sound on a low (or non existing) budget.

Pinewood Update 34
With two studios recently having undergone the Munro treatment to bring them up to the highest Atmos spec, PAUL MAC pays a visit and finds out what the improvements can hope to offer future Pinewood sessions.

Video Guide 58
Test, measurement, and quality control are becoming more and more important in a world where TV viewers are becoming more and more discerning. KEVIN HILTON finds out how it's done.

Classic Cut: Quatermass 62
Turning much-loved TV programmes into films is not a new invention – KEVIN HILTON looks at how the aliens came to earth, and how electric audio amplified the scare factor, in the 1960's big-screen versions of Quatermass.

All jobs can have an element of creativity; and I mean 'creative' in a very wide sense – where it occupies the grey area just to the right of 'problem'. It's not just the ability to come up with a solution; it's the ability to come up with a *better* solution. It's not just working out what will fit, it's coming up with the *best* fit. I won't insult you by listing examples of creativity from audio production; I think everybody is well aware of just how creative the industry is. And the results are measurable. Creativity is the difference between a hit and a miss, or a returning client and a disappearing client.

At every level of the industry, we need creativity to produce excellence. What motivates people to be creative? Well, it might be money for some, but that is not the whole story. How often do you hear successful artists say that the main reason for their success is because they produced what they loved, not what they thought the market needed? Surely there's some truth in that?

So when we devalue the money, what brings out the best in people?

Working relationships, praise, pride, sense of duty to the project and the project leaders, the sense of respect from others, responsibility given, opinion sought… and on, and on. This is all basic stuff, but easily forgotten. Some of it is social practice – how to achieve an outcome from a third party by your own actions – but much of it is simple 'value', of which money is a part, but not the whole.

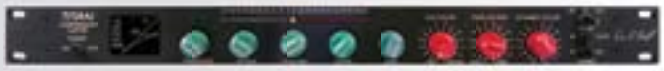
1) Asking your colleague what they think. 2) Acting on it. 3) Trusting them to act on it. These are three examples of motivational techniques, ordered by increasing value. There is an incredibly rich pool of these actions to draw upon, and premeditation doesn't have to mean the sentiment is false. It just means you know the value of value itself.

Assuming you don't overdo it and cause irreparable ego (exceeding headroom), the genuine value you attribute to the people around you, by your own actions, will get a proportional result down the line.

And value can go down, as well as up.

Paul Mac, Editor

TECHNOLOGY
DPA d:facto II **54**



TECHNOLOGY
Dave Hill Designs Titan **56**

SPECIAL REPORT
Britannia Row **30**

AUDIOMEDIA

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Advertisers Index

Allen & Heath	17	Nugen Audio	33, 35
Audio Precision	64	Orban	38
Audio-Technica	10	PMC	47
Avid	5	PreSonus	13
Bosch	23	Prism Sound	24
DiGiCo	2	Pro Sound Awards	60
DPA	41	Radial	63
Focusrite	7	Richmond	26
Genelec	6	Sennheiser	31
JoeCo	22	Shure	11
KMR	40	Sonnox	36
Lawo	49	Studiomaster	21
Media Logic	19	Tascam	51
Merging	16	TC Electronic	27
Nagra	37	Ultrasone	39
Neumann	18	Yamaha	15
Nova Distribution	45	Zaxcom	25

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Simon Campbell
Head of Technical Services, Abbey Road Studios

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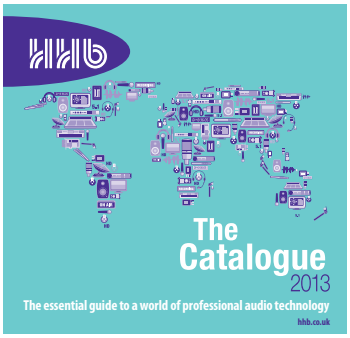
Here's what we learned from Twitter this month – @twistedsifter shared *50 Life Hacks to Simplify Your World*, which include some nifty ideas for sorting out cables – always useful. It's number 31, however, that really is The Best Idea Ever (disclaimer: in the opinion of our News Editor). Check it out:

On the cover CD...

HHBs' biggest ever annual Catalogue



Broadcast and pro audio technology specialists HHB Communications has released the HHB 2013 Catalogue, its biggest ever annual catalogue with information on over 2,000 professional audio products and editorial features from industry leading experts.

The HHB Catalogue is a comprehensive guide to the latest pro audio technology for the broadcast, education, music recording, OB, post, radio, television and video games markets. The latest state-of-the-art technologies for topics such as Loudness, File-based workflows, MADI, Audio over IP, 5.1 and HD, in addition to a comprehensive selection of microphones, loudspeakers, headphones and much more are included. DiGiCo and Yellowtec, as well as a full line of Mogami's 'Cable for Life' audio cables, are new brands now included for 2013; alongside all the time-honoured manufacturers you'd expect to find including Avid, Dolby, Genelec, Olympus, PreSonus, and more.

The HHB 2013 Catalogue is available in print form or in a digital format on an interactive CD-ROM, attached to the front of this month's Audio Media.

Picture: V&A Images

Sound and Vision

The highly anticipated David Bowie Is... exhibition opened to the public at the V&A in London on March 23. Re-tracing Bowie's creativity and influences from all areas of art, the exhibition shows a wealth of material, including videos, stage costumes, album covers, stage sets, photographs, and of course Bowie's music. As well as being a must for all Bowie fans, it's a hot ticket for audio dudes and dudettes too, as it is designed to be an immersive audio experience. Visitors have an audio guide (550 bodypacks powered by Sennheiser's guidePORT system, fact fans) automatically provide the music and soundtrack when visitors approach the exhibits and screens, and integrate all sound material into the tour. There are also two 3D audio experiences within the exhibition. It's the fastest selling event in the V&A's history, with 42,000 tickets sold before it even opened, so if you want to go, get in there quick.
www.vam.ac.uk

Don't forget to check out our website. You can keep up to date with industry news, whatever your particular interest – you'll find recording, post production, broadcast, live sound news, and events. There are features about all aspects of audio, and blogs from a variety of contributors. Available for download from the website are our very useful indeed International Buyers Guides, each focused on a specific area of technology; and back issues of Audio Media itself. Come and visit us at www.audiomedia.com.

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*Shipping Q1 2013 **Shipping Q2 2013

The new Kling & Freitag Sequenza 5 will be presented for the first time at the PL+S show. The compact line array system has been acoustically designed for interaction with the Sequenza 10, with the downfill adapter allowing up to three units to be positioned under the Sequenza 10. The system is equipped with four five-inch and three one-inch Neodym drivers, and it is controlled by a passive one-way control. Up to four elements may be operated on one channel of the K&F SystemRack.
www.kling-freitag.de

iZ Technology Corporation has announced the launch of updated software, v4.0.1, for RADAR 6. The solid state record drives in the new RADAR 6 now come with a built-in SuperSpeed USB 3.0 device port. The SATA drive can be removed from RADAR and used as a standalone portable drive that can be connected to any computer with a standard USB 3.0 cable for fast file transfer. The drive is also backwards compatible with USB 2.0.
www.izcorp.com

AudioTools Update

Minnetonka Audio Software has announced the release of AudioTools Server 2.5, the latest version of its flagship product designed to automate audio tasks. Along with complete standards-compliant loudness control, the new version adds features including load balancing, workflow failover, and support for additional codecs. It offers Dialogue Intelligence for dialogue-anchored loudness correction, which employs Minnetonka Audio's proprietary pūrPath algorithms for digital signal processing. ATS 2.5 is also first in offering improved short-term and momentary limiting with pūrPath loudness control.

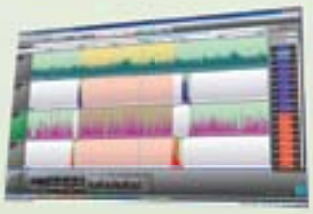
The system conforms to the CALM Act, ATSC A/85, EBU R 128, ITU-R BS.1770, ARIB TR-B32, and OP-59, providing specialised workflows that apply loudness control optimised for different targets and platforms.

"Before ATS, engineers relied on a combination of cumbersome standalone software tools and video-centric asset processing that provided only a simplistic or incomplete audio approach," said Markus Hintz, Minnetonka Audio's Director of Global Sales and Business Development. "ATS eliminates all of that and provides a universal automation platform addressing enterprise requirements for scalability, adaptability, interoperability, and redundancy. Version 2.5 makes that platform even more robust. ATS drops right into existing infrastructures and adds exceptional capabilities without 'forklift' upgrades or the need to rework existing workflows."

As the first product in the industry to offer Dialogue Intelligence for dialogue-anchored pūrPath loudness correction, ATS 2.5 works in conjunction with the ATS WFC workflow control module to enable nonlinear, smart loudness correction based on the actual percentage of dialogue in the material. New to version 2.5 is support for MPEG audio and AAC, critical for hybrid and mobile TV, as well as radio applications.

"the first product in the industry to offer Dialogue Intelligence for… loudness correction…"

ATS 2.5 also offers improved short-term and momentary limiting with pūrPath loudness control. Recent research has led to a new methodology being added to the pūrPath algorithm for handling material that contains extreme dynamic range. This content-independent processing preserves the subjective dynamics of a mix, without impacting dialogue levels or intelligibility.
www.minnetonkaaudio.com



A New Edit

Lawo has launched EDIT, a software solution for radio production. It features a dedicated toolkit for each task involved in generating the full spectrum of editorial content for radio broadcasting; including reporting, interviews, or the creation and continuous updating of recurring pieces. It has a user guidance system and a variety of working modes, and can be adapted to the personal preference of the user. Features include Reporter Box, a voice-over production solution; and the ability to use multiple data formats simultaneously in the same project.

Native integrated sound processors from the mc2 mixing console series ensure reference quality audio signal processing; while a loudness function in accordance with EBU R128 and ATSC A/85 can be used for real-time metering and also for the loudness analysis of archive material.
www.lawo.de

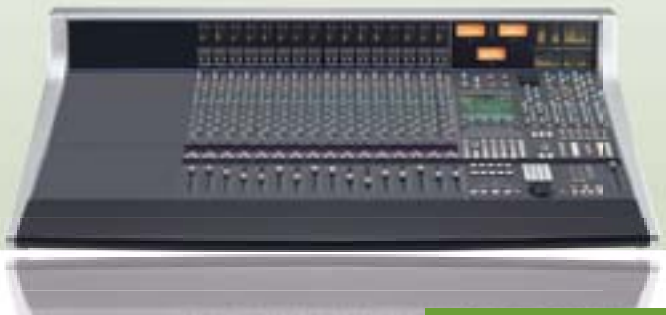
Messenger For Trilogy

Trilogy has launched Messenger, an entry level matrix-based intercom, with features and functionality more often found in more expensive systems. Messenger is intended to bridge the gap between the constraints of low-end, two-wire party line systems and the cost and complexity of larger broadcast intercom systems. The standard Messenger intercom system is comprised of an eight-port matrix running from a single power supply, with pre-stored configuration parameters and two operator panels. The matrix can easily be expanded as required with the addition of two eight-channel expansion boards to create a 24-port capacity; and an additional interface board can provide up to four channels of analogue telephone service. The option to include an in-built IP gateway with eight-channel DSP network connectivity is also available.
www.trilogycomms.com

>

SSL Adds To AWS

Solid State Logic has announced a new addition to its AWS series consoles. The AWS 916 has been designed to bring the AWS range to a wider audience and is aimed at private and commercial studios and educators. The AWS 916 offers identical functionality to the AWS 924 with the only difference being that the frame is loaded with 16 channels instead of 24. The AWS is expandable to full AWS 924 specifications by the addition of an eight-channel upgrade package available separately.



"Not everyone has the processing requirements of our larger format consoles and find that 16 channels of SSL SuperAnalogue are more than enough for their needs," said SSL's Group Commercial Director, Piers Plaskitt. "When you add in the elegant DAW integration, it is hard to find anything else in the marketplace that comes close."

The new AWS 916 has a 24-fader footprint, and delivers SuperAnalogue™ summing, 16 SSL SuperAnalogue mic pre's, SSL dual-curve EQ on every channel, two assignable SSL Dynamics processors, stereo bus compressor, TotalRecall and full 5.1 monitoring. In addition to on-board classic SSL automation, the AWS 916 also features the A-FADA system, with motorised analogue faders that follow DAW automation data.

Additionally, the AWS 916 features Ethernet connectivity for streamlined hardware control over the entire DAW environment. The AWS delivers physical control over a users entire studio environment, with dedicated heavy-duty DAW transport, V-Pot multifunction encoders with position indicating LEDs and digital scribble strips. It also has a DAW fader mode, global and channel routing controls and built-in TFT display for advanced plug-in control. Project session management is done through SSL's proprietary Logictivity interface.

"The AWS 916 has been designed to bring the AWS range to a wider audience…"

The AWS 916 is retailing at £35,000 ($52,500 US).

www.solidstatelogic.com

Fohhn Audio is now shipping its new LX-220 high performance hybrid line source system, the latest addition to its Linea series. The 2.2 metre, four-way loudspeaker has been developed to provide the best possible sound quality for speech and live music applications in challenging acoustic environments where visual integration is also a requirement. The LX-220 is equipped with 18 four-inch high performance, long excursion, neodymium speakers arranged in a column, plus three one-inch compression drivers with horn loaded Fohhn Waveguide system and self-resetting Intelligent Protection Circuit.

www.fohhn.com

Fairlight has announced that its audio post production systems XYNERGI and EVO now come with the new Dream Version 4 software. New features of the software include: mouse based editing enhancements, single screen interface, improved dynamics, Multi Client ASIO bridge, Clip Bin and Clip Store functions, and new features for the Audiobase sound FX database.

www.fairlight.com.au

Ableton Pushes Live 9

Ableton has released Live 9, the new version of its music creation software. New features include automation which can now be recorded in real time directly within clips; a redesigned browser; a large selection of production-ready sounds; three ways to extract MIDI from audio clips; reworked studio effects; new tools and improved workflow; and the Suite edition of Live 9 comes with Max for Live, giving users access to an array of instruments, effects and tools.

Also released is Push, a hardware instrument for making songs from scratch, powered by Ableton Live 9 running on a computer. It features 64 velocity and pressure sensitive multi-colour pads.

www.ableton.com

Give Me A Reason

Propellerhead has announced a new major version of its Reason music software. The company has focused its attention on improvements for the mixer, the rack and the sequencer. Reason 7 allows users to integrate all their instruments into Reason with MIDI out, automatic audio slicing and audio quantise, and convert recordings into REX loops. For mixing, Propellerhead has introduced a spectrum analyser with visual EQ controls; group and parallel mix channels; plus workflow improvements. Reason 7 has made it easier to import audio from users' music libraries and the web, with support for MP3, AAC, WMA and more. The enhanced Factory Sound Bank has many new loops and drum kits, while the Audiomatic Retro Transformer effect adds a 'futuristic-vintage sound' to any track.

www.propellerheads.se

New Europort

Behringer has introduced the latest in its Europort product line, the iP40PRO, an all-in-one portable PA system with full Bluetooth connectivity. The iP40PRO features a 40-watt, class-D amplifier, an eight-inch woofer and high resolution tweeter housed in a self contained package with integrated wheels and retractable luggage-style handle for ease of transport. A rechargeable internal battery provides up to 12 hours of on-the-go operation. A 'Planet Earth' switching power supply offers maximum flexibility (100-240V) worldwide. Two microphone inputs with high-quality mic pre-amps and individual volume controls are provided, as well as an aux input for connecting external audio players. The iP40PRO also comes equipped to stream audio from any Bluetooth-enabled device, such as an iPad, iPod touch, iPhone or laptop computer.

www.behringer.com

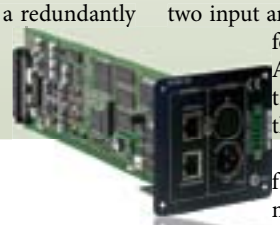
Bass Funktion

Funktion-One will launch its new BR range of Bass Reflex enclosures at the Prolight + Sound show in Frankfurt. The BR range addresses applications requiring deep, strong bass at close range. They offer unique tuning which results in a relatively compact size, but with more definition than is usually offered by this type of enclosure. This extra definition means that they can be used for higher bass frequencies too. The range includes the high-power BR218 (double 18-inch) and BR221 (double 21-inch) large format enclosures, and the BR115 (single 15-inch) and BR118 (single 18-inch) enclosures to supplement Funktion-One's range of smaller enclosures.

www.funktion-one.com

EV Gets Networking

Electro-Voice has announced a new development for its Tour Grade power amplifiers; the RCM-28 DSP and network module. The RCM-28 is a dual-channel, digital controller module which features a redundantly implemented OMNEO network interface. Via IRIS-Net software, all of a Tour Grade amplifier's network and system parameters can be supervised and controlled remotely.



The RCM-28 is the first EV product to support the new OMNEO media networking architecture. With the module, Tour Grade series amplifiers can be integrated within OMNEO networks with up to 100 other devices without additional hardware. OMNEO is based on two key technologies: the media transmission component Dante from Audinate and the system-control component OCA (Open Control Architecture) developed by Bosch Security Systems together with the OCA Alliance. In combination, these allow the transmission of audio, and in the future also video, formats as well as the control of all devices via standard Ethernet with standardised protocols.

"...a dual channel, digital controller module"

The module offers a digital AES 3 input with a loop-through possibility and a dynamic range of 128dB, whilst two analogue inputs and outputs are available via XLR connections. In each case two input and output signals in OMNEO/Dante format can be received or transmitted. A third additional channel can also be transmitted for remotely monitoring the audio signal path at the amplifier.

In addition to standard functions for signal processing, multi-band parametric equalisers, delays for inputs and outputs (as well as additional FIR filters on the output side) and crossovers and limiters are all available. Two RJ-45 ports for the OMNEO network and four freely configurable GPIO control ports (2 x GP1, 2 x GPO) serve as interfaces.

"With OMNEO, we are offering our customers the possibility of using fully standardised media networks within which not only Electro-Voice equipment but also the products of a variety of other manufacturers can interact seamlessly with one another," said Ethan Wetzell, Platform Strategist with Bosch Security Systems and Global Product Manager for DSP. "In future, OMNEO will play a leading role in both system design and that of new products, so we are delighted to be presenting in the RCM-28 the first of many new OMNEO products."

www.electrovoice.com

iZotope has announced the release of Nectar Elements, the latest addition to the Nectar family of vocal plug-in effects. Built on the same DSP as Nectar, Nectar Elements features an easy-to-use interface, with ten vocal processing effects simplifying vocal production. Nectar Elements features dozens of Style presents that let the user choose between a variety of vocal styles. "By introducing Nectar Elements, iZotope is pleased to offer single-click vocal production to a broader set of users," said iZotope Product Manager, Brett Bunting.

www.izotope.com

Sonnox has announced the release of the AAX versions of its Oxford Dynamics plug-in. Based on algorithms from the dynamics section of the OXF-R3 console, the AAX DSP and Native versions feature six individual sections: compressor, expander, limiter, gate, side-chain EQ, and warmth function.

www.sonnox.com

A Ribbon Revolution
...the rules have changed

Steve Levine

There's a revolution underway in recording studios and on live stages stretching far and wide across the UK and beyond.

Renowned producer and Chairman of the Music Producer's Guild, **Steve Levine** has added his voice to a chorus of unswerving praise aimed directly at Audio-Technica's revolutionary **AT4080** and **AT4081** Ribbon Microphones:

*"Using the **AT4080** for vocals, it sounds instantly like a late 50's, early 60's session, but without the noise. It has that thick warm vocal sound reminiscent of so many great vocals of the era...*

*...The **AT4081** is now my first call when recording guitar amps... they sound so sweet..."*

AT**4080** - AT**4081**

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Merlin's Audio Magic

Tieline Technology has announced the release of its new 1RU Merlin PLUS IP audio codec, designed to manage up to six incoming remotes in a studio. "The new Merlin PLUS IP

audio codec allows engineers to manage up to six simultaneous remotes between the studio and Tieline IP codecs or smartphones using the Report-IT application," said Mary Ann Seidler, VP Sales Americas. "Merlin PLUS is designed to rapidly expand remote capabilities at an affordable price, and when packaged with Report-IT Enterprise it is a simple, compact and scalable solution for managing multiple simultaneous remotes."

www.tieline.com

Coming Up Next

Next Pro Audio will launch its new line array element LX212 at the PL+S show in Frankfurt. The LX212 is a three-way fully horn-loaded, axially symmetric line array element, with 90-degree horizontal constant dispersion control. Being completely symmetric it is capable of generating virtually identical acoustic sound patterns on the right and left. The bass section makes use of two 12-inch speakers with three-inch voice coils placed on either side of the speaker in a dipolar horn arrangement. The horn-loaded mid and high frequency sections are coaxially mounted in the centre of the cabinet, extending lower vocal directivity control and providing smooth mid/high transition.

www.next-proaudio.com

DiGiCo Broadcast Expansion

Following the success of its broadcast specific SD10B console, DiGiCo is using the NAB show in the US and the Prolight + Sound show in Frankfurt for the worldwide debut

of its broadcast version of the more compact SD9, the SD9B. The new SD9B upgrade adds surround capabilities to the standard SD9 live system, providing 48 stereo channels, allowing up to 5.1 bussing, plus a full studio style Monitor Matrix, multiple Mix Minus busses, and Backstop PFL functionality. The SD9 comes at a price that make it a useful solution for touring bands, schools, conference centres, smaller theatres, houses of worship.

www.digico.org

New Loudness Solution

TC Electronic debuted its new DB6 Loudness Management Solution on the HHB stand at the CABSAT show in Dubai. DB6 is a TV and Mobile TV transmission processor that handles loudness metering at the input stage, up or down conversion, loudness processing and online lip-sync delay, in addition to loudness metering at the output stage and logging of all relevant loudness statistics. It has been designed to be a transparent one-step loudness management solution, regardless of codec and delivery platform.

www.hhb.co.uk

Calrec Licenses Xavity

Lab X Technologies has announced that broadcast console manufacturer Calrec Audio has licensed Xavity Audio for use as the foundation of their AVB connectivity audio products. "We want to ensure our customers' needs are well-represented by open standard

AVB-based products, and we have chosen Lab X's robust Xavity Audio platform for the foundation of our forthcoming AVB products," said Patrick Warrington, Calrec's Technical Director. "Xavity provides us with mature, feature-rich AVB implementation for our demanding high channel count, high performance, high reliability broadcast audio products."

www.labxtechnologies.com

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Italians Go For Munro

Italy's biggest studio complex, the 1,000-square metre Art&Music Recording in Gallarate, near maggiore, has chosen Munro's Dynaudio Acoustics M4+P monitors for is main studio, Console Room A. The live recording room features an SSL 24-channel Duality console and a wide range of outboard equipment. "I first worked with Dynaudio Acoustics monitors in various Milan studios," said Studio Owner Bruno Carlo Oggioni, also known as Dr. Shiver. "When deciding on monitors for the new studio I travelled to London and listened to a range of top studio monitors. When I heard the M4 system at Sphere Studios it was like, 'wow!' They have a wonderful bass response even at low volumes, which is important when mixing my music."

The requirement at Art&Music was for a very high quality stereo main monitoring system and Andy Munro proposed the Dynaudio Acoustics M4+P monitor. In addition a pair of custom 18-inch subwoofers were suggested that could be switched in to augment the bass response of the M4 to help simulate club conditions. Pre-sets in the XTA crossover are used to hold the various settings and these can be switched remotely using a GPI interface.

Munro Acoustics' Andy Munro said: "This was a major installation, with a sub system that really moves a lot of air and yet sounds as clean as the highest quality mastering speakers. We use custom, double neodymium magnets for the mids and high frequency drivers, which are more efficient than the standard Dynaudio units. This enables the system to be both clean and loud at the same time. The room is extremely tight at low frequencies, so the overall sound is perfectly true."
www.munro.co.uk

Composer and Producer Michael Price is using a Prism Sound Maselec Master Series MEA-2 EQ on his latest project – the music for ITV's supernatural drama *Lightfields*. "I wanted something fabulous that could add some sparkle and warmth to the TV mixes we were doing in the studio for *Lightfields*. I loved the MEA-2 when I'd used it at Abbey Road so I decided to invest in one for my own studio," said Price.
www.prismsound.com

Austrian studio Casino Baumgarten has installed an iZ Technology RADAR 6 system. The vintage studio still works with original tube equipment from the 60s. In 2012, it was decided to renovate the all-analogue studio, but to preserve the original feel. "We only wanted to have the best possible digital recorder to fit our high end analogue gear," said David Küblbock, First Engineer at Casino Baumgarten. "We wanted a recording system that gives us the feel, sound, and ease of an analogue multi-track recorder."
www.izcorp.com

The Music Producers Guild's efforts to establish an industry standard for embedding ISRC data within digital music files has received a boost with the announcement by MAGIX Software GmbH that it will incorporate EBU Broadcast WAV files in the latest software upstate for its Sequoia Digital Audio Workstation.
www.sequoia-audio.com
www.mpg.org.uk

Joe LaPorta has joined the staff at Sterling Sound recording studios in New York as a Senior Engineer. Joe began his engineering career at The Lodge. Fellow Sterling Mastering Engineer Greg Calbi said: "Having been impressed with the quality of Joe's work over the past few years, once having met him, I became even more impressed with his work ethic, his ability to communicate his ideas, and the passion he has for what we do as mastering engineers."
www.sterling-sound.com

Library Work For Prism

Prism Sound ADA-8XR multi-channel audio converters are being used to help the British Library digitise its collection of multi-track audio tapes. The British Library now has a total of seven ADA-8XR converters in its sound facilities, having just purchased two new units. It has also acquired an Orpheus interface. The Library decided that it was more cost effective to undertake the project in-house. "We use multiple ingest techniques with other analogue carriers such as tape and cassette," said Nigel Bewley, the British Library's Operations Manager Sound and Vision. "The Prism Sound ADA-8XR units allow us to input four stereo channels or eight mono channels, or any permutation, simultaneously. We use Prism Sound ADA-8XR converters because of their high audio quality. Furthermore they are eight channel, so support our multiple ingest workflows. Another important reason is that the Prism Sound ADA-8XR supports a wide range of sample rates including 32kHz. Once this project is completed, the new units will be used on other projects throughout our sound facilities."
www.prismsound.com

Opening Up Networking

The Open Control Architecture (OCA) Alliance, an industry collective developing and working to standardise a media networking system control standard for professional applications, has added three new associate members: Attero Tech, Audinate, and Waves Audio.

"We are very excited to welcome the new members to The OCA Alliance," said Morten Lave, OCA Alliance Vice Chairman and CEO/Managing Director of TC Applied Technologies Ltd. "2013 is shaping up to be a very active and exciting year for OCA. As the AES X-210 project moves forward to standardise OCA, the OCA Alliance will focus on the promotion, support, and evolution of the architecture. These three new partners will add to our efforts to bring an open control architecture to the industry."
www.oca-alliance.com

OCA ALLIANCE

SSL Turns 360

360 Media, a full-service, multi-room facility covering music, mastering, and film projects in Beirut, Lebanon, has installed a Solid State Logic AWS 948 Hybrid Console/Controller in Studio A to attract high-level clients to the facility. The AWS 948 gives 360 Media up to 48 channels of mix capability, SSL's signature SuperAnalogue mic pres, EQ and mix bus, combined with an integrated DAW controller. With the AWS in place, 360 Media has expanded to include audio for film and video.

"We wanted to launch a studio where the client can come in and have access to equipment at the same level as studios in Europe and the United States," said Jad Abouzeid, Co-owner/Producer for 360 Media.
www.solid-state-logic.com

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*But if you yearn for a lot of thudding bass and ear-melting highs like our competition puts out, you can still do that with the same controls. Just don't expect good mixes.

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Atmos At Todd-AO

Todd-AO has announced that the company has completed installation of the Dolby Atmos system on Stage 1 at its facility in Hollywood, in support of the upcoming Marvel's *Iron Man 3*.

"Todd-AO is committed to continuing a long tradition of innovation and leadership in embracing groundbreaking technology in the service of filmmakers," said David F. Alfonso, owner of Todd-AO. "Dolby also has a long tradition of visionary leadership in audio technology, and we believe Dolby Atmos offers a whole new range of creative possibilities for our team of artists at Todd-AO. We are profoundly excited to be able to make this first installation in our Hollywood facility to create the Dolby Atmos mix for Marvel's *Iron Man 3*."

"The Dolby Atmos platform enables our mixers to utilise a larger sonic canvas; aside from its unique object based panning, we can now create spatial ambiences and musical boundaries that surpass what was achievable in any previous theatrical sound format," said Steve Bartkowicz, Chief Engineer of Todd-AO. "The Dolby Atmos system in the historic Stage 1 at Todd-AO Hollywood is the largest scale dubbing stage installation to date, consisting of 58 audio channels. We selected components for the system that exhibited the power handling and timbral characteristic match to the legendary Todd-AO custom screen channel systems."

"The Todd-AO organisation has invested significant time and resources to understand the Dolby Atmos technology and its implications for our workflow, as well as the creative opportunities it would create for our sound designers and mixers," said Alfonso. "Our teams at Todd-AO and Soundelux, working on Marvel's *Iron Man 3*, have responded very enthusiastically to the technology, and we are looking forward to hearing how some of the industry's greatest creative minds will work with our clients to leverage the flexibility Dolby Atmos offers."

Dolby Atmos is our most significant innovation in years and represents the future for entertainment sound in cinema," said Doug Darrow, Senior Vice President, Cinema, Dolby Laboratories. "Having a company like Todd-AO put its stamp of approval on the Dolby Atmos technology is highly noteworthy and represents a significant validation of the technology."

www.todd-ao.com

BBC Manages Post

BBC Studios and Post Production has appointed Steve Kruger as its Post Production Manager to lead and manage its newly-launched post production facility on Charlotte Street, London. Kruger has project managed post production on high profile TV productions, and was the Post Production Supervisor on *Dancing on Ice* and worked on Nine Australia's London 2012 Olympics coverage and for Channel 4 during the Paralympics.

"Steve brings a wealth of expertise in post production, broadcast IT, and operations to the role and is well equipped to ensure our workflows best suit our clients' needs," said Charlotte Forde, Commercial Manager at BBC Studios and Post Production.

www.bbcstudiosandpostproduction.com

Level Up

The 2013 British Academy Games Awards took place on March 5, at London's Hilton, hosted by comedian Dara O'Brien. Thatgamecompany's *Journey* took both audio awards; with Steve Johnson, Austin Wintory, and Keith Leary picking up the BAFTA for Audio Achievement in 2013, beating off competition from *Assassin's Creed III, Beat Sneak Bandit, Dear Esther, Far Cry 3* and *Halo 4*. Austin Wintory, Keith Leary, and Monty Mudd also took the award for Original Music in 2013 for their work on *Journey*. Other nominees in the Original Music category were Lorne Balfe for *Assassin's Creed III*; the Development Team for *Diablo III*; David Housden for *Thomas Was Alone*; Joel Corelitz, Keith Leary, and Peter Scaturro for *The Unfinished Swan*; and Jared Emerson-Johnson for *The Walking Dead*.

www.bafta.org

Fairlight In France

France Télévisions has chosen Fairlight's Audio Post Production system EVO to upgrade 25 of their regional studios. Recent changes to France Télévisions production and distribution of regional news and programs required a complete workflow solution seamlessly integrating audio post in a news production environment.

Following an evaluation process as part of a European Union tender, Fairlight EVO was chosen by a France Télévisions expert review panel as the preferred audio post solution.

Jean-Claude Kathriner, CEO of Fairlight said: "We are delighted that France Télévisions is joining the increasing number of broadcasters around the world selecting Fairlight technology for their audio post production requirements. We are looking forward to working closely with France Télévisions and Broadcast Architech to ensure smooth implementation of the systems."

www.fairlight.com.au

Sony Pictures has brought its sound department – as well as its digital processing facility, Colorworks – under its umbrella, and formed Sony Pictures Digital Productions (SPDP). This will now be the 'one stop' post production services department, offering services to the professional community. Osher and Randy Lake, Executive VP and GM, Sony Pictures Imageworks, will work closely with the sound department's Richard Branca and Tom McCarthy, and Colorworks' Chris Holt, in managing the studio's combined post-production operations.

sonypicturesdigitalproductions.com

Hackenbacker has completed the entire audio post production for *Murder on the Home Front*, a new two-part drama series produced by Carnival Films for ITV. The series is set during the Blitz of 1940 and recounts details of crime in London during the Second World War. Hackenbacker founder Nigel Heath was in charge of the mix.

www.hackenbacker.com

In The Groove Music, a leading source of original and licensed music to the broadcasting, film, and advertising industries, is celebrating its 15th anniversary. "We never lose sight of the fact that we are extremely fortunate to have achieved a measure of longevity in this business, and we're thankful for that success every day," said Co-founder Brian Reidinger. "To be able to take a simple, far-reaching vision of possibility, and, one-day-at-a-time, transform that dream into a functional reality, has been our highest accomplishment."

www.inthegroovemusic.com

LipSync is to provide equity investment and post-production for the as-yet-untitled new project by British director Mike Leigh, which examines the life of the British landscape painter JMW Turner. LipSync previously worked with Post-Production Supervisor Polly Duval on *Great Expectations, Made In Dagenham* and *How To Lose Friends And Alienate People.*

www.lipsyncpost.co.uk

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For more information please visit www.yamahacommercialaudio.com

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China Sports SSL

A Solid State Logic C100 HDS digital broadcast console has been chosen by Beijing TV (BTV) to complete its move into HD production of sports and interview programmes at its new production facility, Studio HD 2. Broadcasting to over 800 million viewers across the People's Republic of China, BTV offers 12 standard-definition and three high-definition broadcast channels, as well as delivering Internet and mobile television services.

"When we were building this new facility, we wanted to have an advanced digital audio console to facilitate our move into an HD production workflow," said YinZhuang Yao, Audio Section Chief, Production Department, BTV. "Because this studio is primarily devoted to the production of sports programming, covering everything from live events in China to high-level international competitions, as well as talking-head type pre- and post-show interview programmes, we have a multitude of audio streams coming in from all over the world. The logical, intuitive layout of the C100 makes easy work of each production, giving us the power to easily move through every programming type."

One programme, produced daily at BTV using the C100, is *BTV Matches*, which focuses on both recorded and live sporting events. The coverage of *BTV Matches* is very broad, featuring La Liga, FA football, and NBA basketball on the international side; and domestic matches that include CBA basketball, CTTSL table tennis, and CVA/WCVA volleyball. Programming also includes CWQL Chinese chess matches.

"The C100 HDS provides an easy way to manage the many sources and destinations for our HD program production through SSL's MORSE Stagebox, Alpha-Link Live-R and GPIO support elements," said Yao. "We also have a 600 square metre arts studio, used for arts programming and talking head-type shows, also linked to the C100 to maximise the scheduling flexibilities of the facility. The C100 celebrates the excellent legacy of SSL, while moving us into the future."

www.solidstatelogic.com

Systems integrator Qvest Media has taken delivery of 16 TSL PAM2 MK2 multi-channel audio monitoring units for critical operator positions at Dubai TV's new centralised transmission and ingest room. In a move that will upgrade Dubai TV's current SD tape-based workflow to a full HD/3G enabled file-based workflow, the DMI-owned station will utilise the PMA2 MK2s for comprehensive decoding and monitoring of stereo and Dolby audio formats throughout its HD broadcast chain.
www.tsl.co.uk

Berlin-based mobile production and SNG provider Betamobil has integrated Riedel technology into its latest truck. At the heart of its new six-camera unit, HD6, Betamobil uses a comprehensive system that combines Riedel's Artist digital matrix intercom and the company's fibre-based MediorNet media network. The Artist system in HD6 consists of an Artist 64 mainframe, which serves as the foundation for a total of 12 Artist 1000 series control panels.
www.riedel.net

In Line Around The World

TVN in Chile has purchased a T*AP Television Audio Processor from Jünger Audio. Although Chile has no loudness legislation, TVN has an international channel that is broadcast around the world via satellite and therefore needs to comply with regulations in place in various countries.

"We already had a loudness processor from another manufacturer, but we wanted something that was more flexible in the final audio chain and has a sophisticated algorithm that could deliver very high quality audio," said Mauricio Rojo, TVN's Deputy Manager of Engineering. "It was important that our broadcasts complied with the legislation in place in all our territories. T*AP's compliance with all international standards and regulations was a key point in our final decision making."

www.junger-audio.com

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WWW.ALLEN-HEATH.COM/GLD

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Studio Monitor KH 310

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The new KH 310 three-way Studio Monitor.

A member of the Neumann Studio Monitor Line.

After implementing DK-Technologies audio monitoring systems into its new ITV Meridian facility, UK commercial channel ITV has now installed the same solution in its news broadcast facilities in Leeds and Manchester. All three facilities are now equipped a PTO760-I/P-8A analogue audio input module and a PTO760M-O/P-8A analogue output module. Each system is augmented with a matching secondary passive display unit.
www.dk-technologies.com

RF Linkup, a company providing satellite uplink services for clients ranging from ABC, NBC, and CBS to Fox Sports and ESPN, has installed Studio Technologies' Model 5130 Party-Line Interface Module as its comms interface for its uplink trucks. The company uses the 5130 to interface comms through a fibre link between its uplink truck and other OB production trucks on location.
www.studio-tech.com

Studer Goes Shopping

Korean company CJ O Shopping Co, one of Korea's major home shopping channels, has launched a 24-hour shopping channel in Thailand, commissioning a new Studer OnAir 2500 mixing console. A subsidiary of the CJ Group, Korea's biggest food ingredients manufacturer, CJ O Shopping entered into a joint venture with the biggest Thai entertainment and media group, GMM Grammy. The aim is to broadcast to 12 million households in Southeast Asia.

The OnAir 2500 was recommended by the Korean investors who were already familiar with the Studer platform. The basic I/O is configured with six wireless mics, CD player, hard disk player, and telephone hybrid, with some special sound FX.
www.studer.ch

Artemis Beams To NZ

New Zealand national broadcaster TVNZ has purchased a 48-fader Artemis Beam digital audio console for its Auckland, New Zealand studios. The Artemis Beam console mixes audio for TVNZ's flagship news programming as well as other content for its commercial networks. The console's routing capabilities are a major feature in TVNZ's audio operations.

The new console marks a digital upgrade for TVNZ, who replaced an older Calrec analogue console. TVNZ uses the new Artemis console to mix daily live news production, a morning magazine show, several weekly current affairs shows, and a weekly consumer advocacy show. In total, the console is used for more than 14 different live and recorded shows each week. The Artemis console manages all incoming audio, triggering effects, and production of mix-minus and IFB feeds.
www.calrec.com

Swish Swiss System

The KKL Luzern Concert Hall in Switzerland was designed by architect Jean Nouvel and opened in 2000. The concert hall features some remarkable acoustical properties, including an extremely low quietness level of below 20dB and mechanically variable room acoustics employing huge echo chambers surrounding the hall. After a dozen years at a yearly booking rate of 90%, it was decided to upgrade its retractable electro acoustical system. Acoustics expert WSDG was brought in to undertake the project.

The new sound reinforcement system consists of a LR main system with two line arrays of eight d&b V12 units each, suspended above the stage front edge, two additional line arrays for covering each of the balconies with five d&b V12 units, a stage edge in-fill system consisting of two d&b V-Sub and two d&b V12 units each on the right and left and a stage mounted front-fill provided by six d&b E6 units. For events requiring 360-degree speech reproduction a retractable centre cluster was provided with a front section (consisting of eleven d&b T10 units) and a rear section (consisting of three RCF VSA 2050 digitally controlled column loudspeakers). Amplification is provided by d&b D12 units. All the line arrays are suspended and are equipped with a motor and cable winding mechanism. This allows the retraction of all loudspeaker arrays not required for a specific performance, to a parking position above the canopy. "Beyond their sonic qualities we also really like the aesthetics of the new system, being an inconspicuous, slim line array," said Technical Director Tjark Kuhlmei. "With the subs on stage, we can flexibly adjust the low frequency reproduction as required, or not use them at all, for example for pure speech events."
www.wsdg.com

Former Guns N' Roses guitarist Slash recently played a sold-out show in Katowice, Poland. PROSOUND provided sound reinforcement, with a design consisting of hangs of eight VTX V25 full-size line array elements front-facing on each side of the stage, with 12 VTX G28 subs. These were powered by Crown Audio VRack 12000HD amplification systems. Two hangs of six JBL VERTEC® VT4888DP mid-size line array elements were deployed as outfills, with a further eight filling the front rows in the arena to deliver a smooth, 180-degree dispersion pattern.
www.jblpro.com

Kid Rock and his band, Twisted Brown Tucker, have just completed two months of arena shows across the US. The tour took a full complement of L-Acoustics K1, KUDO, and KARA loudspeakers with it, all powered by LA8-equipped LA-RAK. The main house system is comprised of left and right arrays of 14 K1 flanked by adjacent arrays of six K1-SB subs and outfill arrays of nine KUDO. New to this tour is the deployment of three KARA per side hung from the bottom edge of the K1 arrays for downfill coverage.
www.l-acoustics.com

The Indian Institute of Technology Bombay (IIT-B) recently completed a major renovation of its 1,500-seat Convocation Hall. Mumbai-based systems integrator ADJM Technologies provided expert consultancy on the A/V system upgrade, which included six JBL SRX725 loudspeakers, four SRX712M stage monitors, and two SRX728S subwoofers. The speakers are driven by Crown CDi 1000, XLS 2000, and Crown XTi 6002 power amplifiers. The multi-purpose auditorium's complex audio matrix requirements are managed by a BSS Soundweb London BLU-100 signal processor. Two AKG PCC-160 boundary layer mics and a Soundcraft FX16ii 16-channel mixing console complete the installation.
www.harman.com

Scottish singer/songwriter Amy Macdonald has spent February and March on a European tour to promote her latest album *Life In A Beautiful*

Select Committee Quizzes PLASA

PLASA CEO Matthew Griffiths appeared alongside members of the London 2012 Opening Ceremony creative team, representing the entertainment and installation technology industries before the Culture, Media, and Sport Select Committee on Tuesday, March 26 at the House of Commons.

PLASA has been lobbying on behalf of its members, many of whom were unhappy with being unable to promote their involvement in the Olympic and Paralympic Games. PLASA was invited to appear before the Select Committee to help MPs assess the extent of the role that the Games had in showcasing the UK creative industries, and the subsequent impact on the sector.

"Many of our members were disappointed to discover the pervasiveness of the orders set up to protect the sponsorship deals of companies from outside the creative industries," said Griffiths.

The Committee also questioned Griffiths on how the government can support the creative economy more generally.
www.plasa.org

Masque Gets Kinky

Masque Audio has provided a custom audio equipment package for new Broadway musical *Kinky Boots*, that included a DiGiCo SD7-T digital mixing console, Sennheiser 5212 transmitters, d&b speakers for surrounds, L-Acoustics 108Ps for the foldback, and TC Electronics 6000 for reverb. He also utilised Meyer M'elodie and Mina ultracompact high-power curvilinear array loudspeakers for left, right, and centre systems; and 500 and 700HP- subwoofers.

"The box seats in the Hirschfeld Theatre pretty much tuck right up against the proscenium, so the seats running along the sides of the orchestra seating section are very much shaded from the side arrays", said Sound Designer John Shivers. "The team at Masque was able to provide additional speakers to make sure those seats were covered."
www.MasqueSound.com

ADLIB Gets The Script

Liverpool-based ADLIB has supplied an L-Acoustics K1 sound system to the current UK and Ireland arena section of Irish alt-rockers The Script's '#3' world tour, as specified by FOH Sound Engineer Richard Nicholson. ADLIB's crew are touring a total of 48 x K1 cabinets, with 16 x K1-SBs and 18 x L-Acoustics SB28s for low end. In the largest configurations, they are flying 14 x K1s a side left and right, plus four KARA downs per array, and behind that are eight flown K1-SBs. The side hangs (left and right) comprise 10 x K1s with six KARA downs.
www.adlibsolutions.co.uk

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HORIZON 2012

Light, with FOH Engineer Fabrizio Piazzini mixing the shows on a DiGiCo SD8. The SD8 used 53 inputs on the shows, which Piazzini output to a basic left/right mix. "I want people to see and hear Amy, but without her being overpowering," he said. "The production on the albums is very clever. it's very dynamic. I have a Snapshot per song, but I am riding the faders throughout the show."
www.digico.org

The nominees for the Olivier Awards have been announced. Up for the Best Sound Design award are David McSeveney for *Constellations;* Gareth Owen for *Top Hat*; Ian Dickinson for The Curious Incident *Of The Dog In The Night-Time*; and Paul Groothuis for *Sweeney Todd*. The awards, which celebrate the best of British theatre, will take place at the Royal Opera House on April 28.
www.olivierawards.com

Willow SoundVision has recently completed the AV installations for The Hippodrome Casino in London's Leicester Square, incorporating over 200 Community loudspeakers. One hundred and forty-six Community Distributed Design D4 ceiling loudspeakers, 22 DS5 surface mount loudspeakers, and seven Community D10 ceiling subs provide the main music and public address system for the gaming areas, restaurant, bars, and event spaces.
www.communitypro.com

Flare For Festivals

The organisers of two UK festivals, the Shakedown Festival and the new Love Supreme Jazz Festival, have confirmed Flare Audio as their preferred sound supplier for 2013. Flare has provided the sound for Shakedown's Supercharged Dance Stage for the last two years. The festivals' promoter Nick Beveridge commented: "Flare Audio will be providing both festivals with the best speakers I've ever heard in a field. With the introduction of Flare's new Space technology, we're confident that Shakedown and Love Supreme festivals will be delivering the latest and best sound available."
www.flareaudio.com

Streaming from SXSW

Allen&Heath consoles were used to stream more than 50 acts from this year's South by Southwest Festival in Texas, live to millions of people around the world. Two A&H iLive-T112 and iDR-64 mix engines were used for the broadcast feed and production. The signal from the stage was channelled through an A&H MixRack and iLive audio consoles, then processed by a Waves SoundGrid audio networking platform. The final mix was sent from the iLive console to the TriCaster 800 where it was merged with the on-stage cameras footage.
www.allen-heath.com

Hearing Young Voices

FOH Engineer Barry Bartlett used Turbosound's Flashline line array speaker system for the Young Voices UK Arena Tour earlier this year. Featuring choirs ranging from 5-8,000 children's voices, this was the first time out for the Britannia Row Productions system. "What really struck me was the consistent horizontal and lateral coverage achieved by Flashline across the huge performance spaces, including London's cavernous O2 Arena," said Bartlett. "...The Flashline system delivers a very natural and impressive presence."
www.turbosound.com

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Journey's BAFTA Bonanza

At last month's 2013 British Academy games awards ceremony in London, England, Playstation title *Journey* picked up a whopping five BAFTAs including both 'Original Music' and 'Audio Achievement'. Keith Leary, Music Manager for Sony Computer Entertainment America's Product Development Services Group, told *AM*: 'We are absolutely delighted. It was a phenomenal team effort over the entire three year development cycle. Composer Austin Wintory, Sound Designer Steve Johnson, the Sony PlayStation Music Department, and Creative Director Jenova Chen (thatgamecompany) all worked together to produce an audio experience that would connect with the player on a highly emotional level. There is no dialogue in *Journey*, so we saw this as a fantastic opportunity for the music and sound to help tell the story and elicit a lasting emotional response. We were lucky that we had such a long development cycle as this gave us time to experiment and to fine tune and polish at the end. (There's a ton of music and sound design on the cutting room floor!). On a personal level, it has always been my life-long ambition to win a BAFTA, so I was delighted to be able to attend the awards show and accept the awards in person on behalf of everyone involved."

"...we saw this as a fantastic opportunity for the music and sound to help tell the story and elicit a lasting emotional response."

Keith Leary, spokesman on *Journey* for Sony (Kevin Joelson).

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VGM is 15

Andrew Barnabus.

Last month, its founder and owner, Andrew Barnabas, along with over 500 members across the planet, celebrated VGM's 15th birthday. The 'Videogames Musicians List' is an online mail list/discussion forum beloved of hundreds of game audio professionals the world over, providing a professionals-only private arena for debate of key issues and the provision of valuable mutual support. The user feedback speaks for itself:

"VGM is one of the few places with a true community of your peers, where you know that whether it's an answer to a specific technical question or just general conversation, the calibre of discussion will be stellar. I can always count on a top-notch exploration of whatever game audio issue is raised, be it technical, pragmatic, aesthetic, or just what's cool and interesting."

Brian Schmidt, Game Sound Con

"VGM is the most helpful, informative, supportive professional community I have ever come across. The most talented folk in the game audio industry willingly share their thoughts, tips, and inspiration with an unwarranted freedom and friendliness. It rocks, in all senses of the word!"

Tom Colvin, Audio Director, Ninja Theory

"The nature of our work forces us to be isolated… But we are not solitary animals – we like to run in packs. And the overriding quality of the pack is that we have a passion for audio. Yet, everyone is different in how they apply that passion; he does great gun sounds, she does great mixes, he knows how to get cool creature sounds... and when we get together, we know intuitively that sharing how we got to those cool sounds will give each individual an exciting new inspiration and starting point. For me and many other audio folk, sharing in the audio world really doesn't diminish or 'give away' the methods of the creator, because it's almost impossible to perfectly replicate someone else's work anyway. VGM is sort of like a perpetual GDC audio meet-up. Everyone on the list is a professional, and has been down many roads before, so is able to contribute from an informed and unique place. And most importantly, that instinct to share and build is there as well – that by contributing, we all become a little richer. It's one of the few virtual communities that I look forward to hearing from every day, and it really does make the game audio world a better place."

Zak Belica, Audio Director, Epic Games

"Quite simply, if other disciplines had anything like the open, vibrant resource of VGM, our industry would be light years ahead of where it currently is artistically, ethically, and, in many ways, commercially. Film and TV can only dream of having something like VGM."

Dan Bardino, Senior Manager, Creative Services Group, SCEE

Happy Birthday, VGM!

FMOD – An Education

The Australian company Sound Librarian is developing official educational and training materials for the latest FMOD tools. Responsible for delivering the initiative is Sound Librarian's Stephan Schutze, who told *AM*: "I've been working with the FMOD guys for some time, producing their manuals for 'Designer' and 'Studio' – plus their YouTube tutorials. We are now developing the FMOD Learning Suite – essentially the only official FMOD education material available starting with 'FMOD Studio 101: An Introduction To FMOD Studio', which will be followed by 'FMOD Studio 201: Certified Training Course', 'FMOD Studio 301: Educators Certificate', and 'FMOD Studio API: Course For Programmers'. Obviously, we need to wait for Studio to be fully developed, but we've been showing FMOD 101 at last month's GDC and starting sign-ups, and the course will be ready mid-year in time for the new academic calendars of many regions. The material will be more than a simple course – each registered student gets the textbook and a tailored sound effects library, and the course material includes FMOD Studio projects for both trainers and students, plus other resources such as game audio analysis videos – it's going to be a hefty package."

www.fmod.org

The Last of FM?

The UK is now an all-digital TV viewing nation. This being Britain –not famous for embracing change – there was some resistance. The old argument that the digital switchover (DSO) was nothing more than a way for manufacturers to sell their latest TV sets was reeled out but, if anything, the real target for viewers resenting the loss of analogue transmission should have been the government, which saw the old spectrum as a commodity to sell off to telecom companies for new mobile services.

A few months on and everyone seems to have got used to digital TV, what with more channels and interactivity. Similar features are on offer with digital radio, but there's likely to be much more shouting and resistance to getting rid of good old analogue than with telly. Radio is something that is just there. You walk into the kitchen, click a switch, and your favourite station comes out of the grille on the front.

There is the perception that people of a certain age can't be doing with new technology like DAB, and just want to stick with good old FM because it's familiar and easy to use. In my experience analogue radios can defeat some people as much as their modern counterparts. Get the tuning dial just slightly off the frequency and reception is terrible – all distorted and fading in and out.

> "At its best FM stereo can sound stunning. Discerning listeners question the benefit of moving to digital if the sound quality is inferior to analogue."
>
> Kevin Hilton

Digital radio is merely a case of selecting a station from an on-screen list and hitting a button – or, if one is really with it, pushing a pre-set knob. Like its TV equivalent, DAB also offers a wide range of channels, with many specialist, digital-only stations.

But It's Not All Roses

Despite the supposed convenience new digital radios can be daunting compared to the traditional turn on and tune in dial sets. And, contrary to popular belief, DAB is not free from interference. It also will remain stubbornly silent if the receiver cannot pick up a strong enough signal. At least analogue will get something, even if it is faint.

Another bugbear with digital radio, which is due to the operators and stations rather than the listener and their equipment, is the transmission bit rate. Squeezing a lot of stations on to a multiplex takes a lot of bandwidth, but even with some room to spare there are stations that choose to run at low rates in mono. Urban music station Kiss, for example, recently went on the national Digital 1 multiplex, moving away from local mux distribution and running at only 80kb/s. At its best FM stereo can sound stunning. Discerning listeners question the benefit of moving to digital if the sound quality is inferior to analogue.

All these points are now more pressing. The present UK coalition government has proposed a DSO for radio by 2015, and intends to make a final decision on whether that will happen by the end of this year. Digital Radio UK, the organisation that is promoting DAB here and would be instrumental in any switchover, has said such a move would only happen if two criteria were met. These are: local DAB coverage has to be 90 percent and national UK coverage equivalent to FM, while 50 percent of all radio listening would have to be over digital platforms. The current digital radio listening figure is 31.3 percent and Laurence Harrison, Operations Director of Digital Radio UK, hopes the two targets will be met "around the end of 2015".

To gauge response to a potential DSO and how people might cope, the Department for Media, Culture, and Sport (DMCS) commissioned research company Ipsos MORI to conduct a survey in the West Country city of Bath. The Go Digital Project took place though February into March and was designed to see how people react to life without analogue radio.

The DMCS says it wants to understand "the impact of any future radio switchover on households and specific consumer groups in a controlled testing environment (both at home and on the road)." While it is looking at the opinions and experiences of all age groups, the DMCS is particularly interested in the experiences of specific groups: "older people, assisted living people, disabled people, and those who are registered blind or partially-sighted." The DMCS statement adds: "Radio is of special significance to all these groups and it is vital that we consider fully their views and concerns before implementing any decision to move from the current technology."

Data from the survey will be analysed during this month and results presented to the DMCS. A spokeswoman for Ipsos MORI said this information would "inform the government's decision".

A Move Too Far?

The UK has been at the forefront of DAB transmission and digital radio programming since the mid 1990s. Getting to the point where a government is considering switching over from analogue to digital – although not fully as only national, regional, and big local stations would move completely to DAB, while some smaller local and community stations would remain on FM – has not been easy. Affordable digital radios took a long time to appear on the market, and it is only now that the all important in-car sector has been installing DAB receivers as standard, supported by adaptor kits.

Radio has been described as the friend in the corner, so any suggestion that this particular old pal would be lost to people is worrying. Digital radio has its benefits but the government should remember that radio itself is not like television and its listeners, followers and supporters have very different attitudes and needs to TV viewers. Maybe a hybrid future, then? AM

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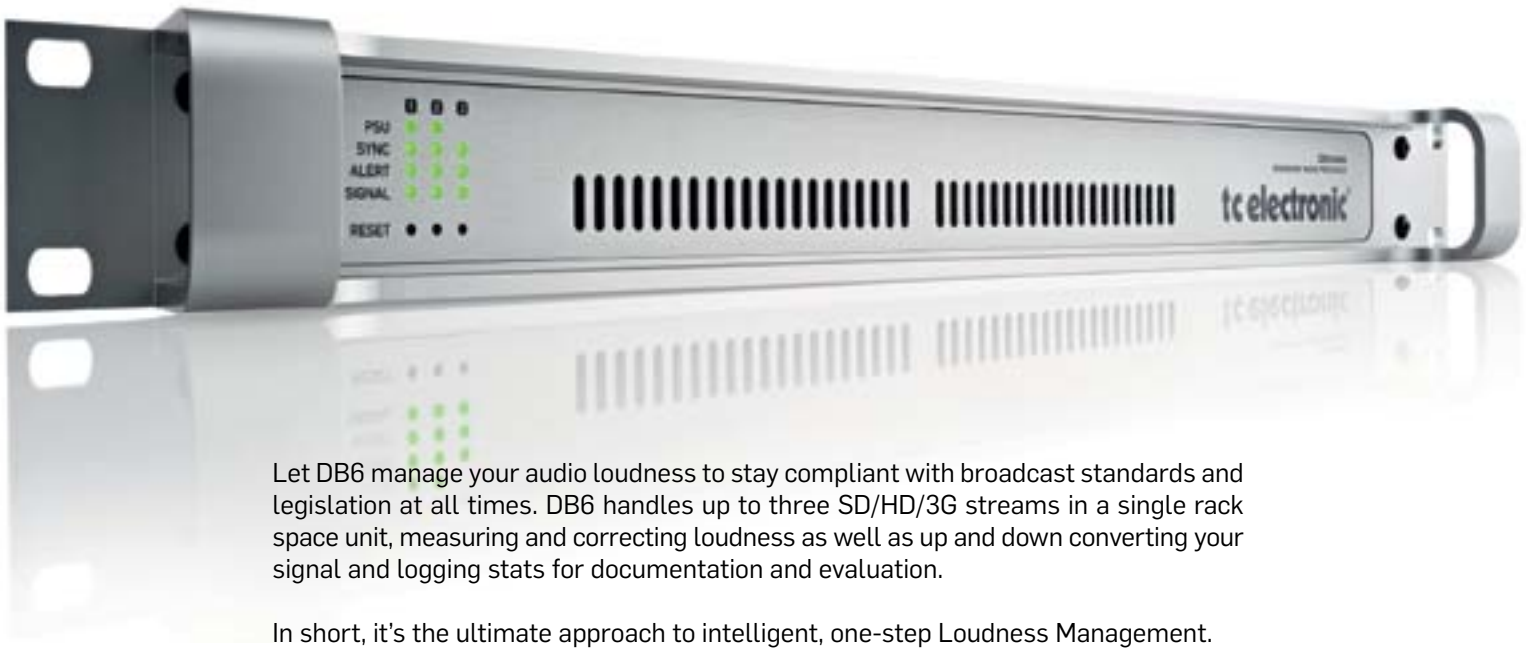

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PEACE CELEBRATION

Midas Mixes Nobel Peace Prize Concert 2012

Norway – The annual Nobel Peace Prize Concert, held in Oslo, saw an extensive network of Midas live audio mixing consoles ensure well-loved artists, including Kylie Minogue, Jennifer Hudson, and Seal, sounded spectacular.

Hosted by the American actress Sarah Jessica Parker and Scottish actor Gerard Butler, the concert was recorded live and televised to over 120 countries to reach more than 500 million viewers worldwide.

Set across three stages, the centre stage accommodated a full-size orchestra conducted by Nick Davies. Such a design ensures that the live televised show runs seamlessly from beginning to end as artist performances alternate between stages.

This year, Norwegian production company AVAB CAC deployed two MIDAS XL8s front of house: one for the 55-strong, individually mic'd, Norwegian Radio Orchestra; and the second to take care of the array of international performers along with the in-house band. Norway's biggest rental house – and long-term MIDAS partner – AVAB-CAC, supplied full production for the show.

In addition a total of four Midas PRO9s were used as monitor consoles – supplying numerous in-ear mixes for artists and orchestra, as well as to the multiple floor monitors across all three stages.

"The Nobel Peace Prize Concert is a high-profile gig that's televised worldwide, so it's essential that we work with the highest possible quality sound system," said Asle Nilsen, Head of Pro Audio at AVAB-CAC. "This, combined with their networking potential, makes the Midas PRO Series ideal for an event like this. After all, we had more than (800) audio sources in the network!"

Networking such a huge event with multiple acts also saw Nilsen specify a combination of the Midas DL431 mic splitter and AES50 tie lines between the consoles. "To interface with the many audio sources, AVAB-CAC employed (192) channels of Midas DL431 active mic splitter, plus a number of Midas DL451 and DL351 modular I/O devices, totaling nearly (500) inputs, all of which were accessible to all six consoles via the AES50 network. The DL431 splitters also provided pristine audio feeds to the NRK TV trucks for simultaneous TV broadcast.

As well as mixing monitors for its own stage, the PRO9s were also used to create multiple stem mixes of the performance, which could then be accessed from the combined network by the other consoles. "This year almost every act played with the Norwegian Radio Orchestra, which meant that a lot of people needed to be able to hear each another at any one time," explains Nilsen. "Fast and easy routing of audio between the different consoles and stages is an absolute must."

"Some acts move from one stage to another, so we also needed monitor consoles that could sync with one another," says FOH Engineer Øystein Karlsen. "Alternatively we might have an artist on stage one and a choir on stage two. In this case the consoles need to have access to each other's audio sources to feed the monitors. As far as I am concerned Midas ensures that we can meet the demands of today's musicians quickly and effectively."

The Nobel Peace Prize is one of the most influential awards in the world. The ceremony takes place on December 10, the anniversary of Alfred Nobel's death, and is followed by the Nobel Peace Prize Concert. Featuring an international selection of musical artists and celebrity hosts, the concert honours the Nobel Peace Prize laureates. The Nobel Peace Prize Laureate for 2012 was named as the European Union.

RESORT REINFORCEMENT

Technomad at Scandinavian Ski Resort

Sweden – The largest ski resort in Northern Europe has amplified the lighting and sound experience for its guests, with Technomad advanced audio loudspeakers as the centerpiece.

SkiStar, located in the Åre municipality in northern Sweden, is giving skiers an interactive experience on the slopes with its new high-quality, multi-zone entertainment system. The Technomad loudspeakers, projected by systems integration company Watt & Volt Sverige AB, communicate the history of SkiStar and deliver atmospheric audio in eight locations. Watt & Volt worked alongside project leader Ljusarkitektur AB, which is responsible for the new lighting structure that accompanies the audio system.

The complete, synchronised system delivers a captivating lighting and sound experience to skiers, with audio originated through zoned DMX-controlled MP3 players.

"This is a completely new concept for ski resorts in the north of Europe, perhaps even beyond," said Hamrin. "To our knowledge, it is the only system in the north of Europe of its kind, in the way the ambient sounds connect surrounding areas with the lighting installation."

Watt & Volt, which recently joined Technomad's European dealer network, chose Technomad loudspeakers for their complete weatherproof construction and ability to withstand harsh outdoor environments – also noting excellent audio quality and broad coverage as benefits.

Technomad Paris loudspeakers were installed at locations where musical reproduction and exceptional bass output were required. Watt & Volt chose Technomad Vernal loudspeakers, the most compact model in the company's portfolio, at stations where intelligible speech is a priority. Hamrin added that both models satisfy unobtrusive audio system requirements from SkiStar and Ljusarkitektur. The loudspeakers are installed alongside compact, protective, heated cabinets with built-in amplifiers to complete the outdoor installation.

Future expansion plans include the installation of more Technomad loudspeakers at outdoor gondolas throughout the resort. The gondola systems will include battery-powered, RFID-controllable MP3 players built into ultra-compact, highly protective plastic cases.

LIVE MUSIC VENUE

Alcons Reinforces Brewery House

Sweden – A former brewery may not seem the obvious choice for a live venue, but that is exactly the use that Stockholm's Bryggarsalen has been put to. A newly-installed Alcons Audio system ensures that the sound for live events has a crisp head and a full body. Just like a good ale, in fact.

Originally built in 1914, Stockholm's Bryggarsalen (Brewery House) ended its first incarnation as a brewery in 1970. The ensuing 40 years saw the building put to a variety of uses, until its rebirth as a live music and corporate event venue in 2010. With a restaurant and two bars complementing the event spaces, it's already extremely popular.

Bromma-based Electrosound has previously installed Alcons systems in several other Swedish venues, so the company's engineers knew that Alcons would deliver in what proved an acoustically challenging room.

Originally it contained the washbacks for brewing the beer (giant vats where liquid wort is mixed with brewers yeast), so has a high ceiling with tiled walls and floor. In addition, a balcony at the rear of the space has another flat, tiled wall facing the stage, with two sets of marble stairs leading up to it. This profusion of hard, flat surfaces made careful product selection essential.

"From previous installations, we knew that the clarity and precision of Alcons systems helps a huge amount in a room with as many reflections as this one," says Electrosound's Brollan Söderström, "Alcons really was the obvious solution."

The system comprises six LR14 pro-ribbon line-array loudspeakers flown each side of the stage, with a BF302 sub per side boosting the low frequencies. Three further loudspeakers act as balcony delays, with a Roland M400 digital system taking care of the house and monitor mixes.

"We had to be very careful when positioning the speakers," says Brollan, "As well as not pointing them at the walls, we kept the main system away from covering the balcony and spent a great deal of time working with the architects and designers, explaining why it was necessary to install heavy drapes on as many walls as possible.

"They understood what we were trying to achieve and so, despite the acoustic challenges, the sound is actually very good. The venue is very happy and we have received good comments about it from many other people as well, just like we do from those who have been to other Swedish venues where we have installed Alcons systems – just some of these are Malmö's Nöjjesteatern Theatre and Debaser nightclub; the Berns Salonger entertainment complex, another Debaser nightclub, and the Malmen and Anglé hotels in Stockholm, as well as three conference centres."

CRUISE SHIPS

Amplification for Viking Line

Scandinavia's leading cruise company Viking Line has announced that its new flagship cruise liner M/S Viking Grace, due to set sail in January 2013, will be amplified by Swedish brand Lab.gruppen. The announcement continues a successful relationship between the two companies, with seven of Viking Line's current fleet now being kitted out with Lab.gruppen amplifiers.

Lab.gruppen's Finnish distributor Noretron Audio Ltd. finalised the deal with Viking Line Abp, which will see the delivery of a total of 27 Lab.gruppen amplifiers to the new M/S Viking Grace cruise ship. Amplification is for a massive 344 Turbosound loudspeakers, which will be installed in a night club, several restaurants, tax free shop, and conference rooms.

The following Lab.gruppen amplifier models were included: PLM10000Q (4 pcs), C20:8X (13 pcs), C10:8X (2 pcs), C10:4X (1 pc), C88:4 (1 pc), and C48:4 (6 pcs). Three NLB60 Nomad Link will handle amplifier control and monitoring. Noretron is also supplying all other entertainment audio including digital and analogue consoles, above mentioned loudspeakers, wireless microphone and IEM-systems.

According to cruise line company's AV Manager Jouni Sironen, extreme care has been put into the audio systems in order to deliver crystal clear sound in every part of ship. Lab.gruppen amplifiers have proved to be extremely reliable in other cruise ships of Viking Line, so the decision was easy when choosing the amplifier platform for the new ship.

"We like the Lab.gruppen amplifiers because they sound good, they are reliable, and they are also very lightweight, which is important for us," says Jouni. "We have used Lab.gruppen almost exclusively on our ships for the past 18 years. Recently, the C-Series amplifiers have made our lives a lot simpler with up to 8-ch per unit [yielding] opportunities to run two channels to 4Ω, and six with 70V lines. The result is that less rack space is needed. Sound quality, durability, lightness, low power consumption, good service, and long guarantees – all of those factors made it an easy choice for us to specify Lab.gruppen on the new ship too."

INDUSTRY CONSULTANCY

Industry Veteran Launches New Business

Sweden – Pro Audio industry veteran Doug Green has launched a new consultancy to provide strategic business development and sales channel support, with a focus on the installed sound market, for manufacturers and distributors in the professional audio industry. DGC Worldwide, as the name suggests, will provide these services across international regions, on a customised as-needed basis.

"In launching DGCW, I can now leverage the wide array of experiences I have gained in the fundamental business domains of the international pro audio business for clients in every market. I intend to support my clients in growing and strengthening their sales organisations, penetrating new geographic and vertical markets, and succeeding with new products – affordably and efficiently," said Green.

With over 25 years of experience in pro audio sales, installation, and business development, Doug Green has held international executive sales management positions with several key industry leaders including Harman Pro, TC Group, TOA US, and business music systems provider DMX Music. He was also on the product management team at Swedish amplifier manufacturer Lab.gruppen. Prior to these appointments, Green owned a US-based national systems integration firm, and also spent a number of years as a full time live sound and recording.

The company will operate from Green's base in Sweden, but will work with clients in every major market. Green can be reached at www.dgcw.biz.

A Live Education

Britannia Row Training

Andrew Graeme greets a new sound course with scepticism, but is soon converted to a new way of thinking…

Britannia Row has raised a few eyebrows by launching a new live sound training course. What makes this one different is not only the obvious fact that it is being run by a major supplier of live sound systems, but the promise that one trainee from each course will be taken on as a full-time apprentice for one year.

Educating staff for working in live sound has so far been a rather hit-and-miss affair, with the larger players such as Britannia Row and Clair UK offering one year apprenticeships to the lucky few who pass a short assessment period. Nearly all live sound companies agree that the government approved apprenticeship schemes are too bureaucratic.

Tim Boyle of Clair UK says, "These schemes may be okay for plumbers and brickies, but we are looking for people who have to do sound and love sound and bring with them the kind of work ethic that you would not find elsewhere. Official apprenticeships are just too rigid."

Britannia Row is starting its own three-month live sound course in July and hopes to roll this out to four courses a year by 2014. The maximum number of trainees is limited to 18 and there is an entry test for physics, maths, and basic electronics. There is also the minor test of finding the £6,000 to pay for the course.

MD of Brit Row, Bryan Grant comments, "Like everybody, we seem to get our share of a flood of applications from graduates of music production courses, but these courses seem to be geared to studio work only, and that's not much use to us."

An Exciting First

There are more than ten courses in live sound at various institutions around the UK, but this is the first time that a live sound company has been able to offer this kind of tuition. Course Manager Mathias Postel, former Manager of SAE UK, brims with excitement when he speaks of the new course and the quality of the tuition that Britannia Row will be able to provide.

"Yes, we know that there are other courses out there, and some are very cheap and some are considerably more expensive, but ours is the only one that is provided by a top touring and gigging company that has specialised in live sound at the very highest level, and using tutors that are working at the very top of their profession."

He continues, "The existing courses can only use static systems in nearby venues. We, on the other hand, offer visits to large gigs and thereby learning to use a wide variety of different types of equipment. There will also be two simulated productions, using a local act – the first being very much guided by the tutors; while in the second the trainees are free to use their own initiative and make their own mistakes. This is a very intensive course."

"The industry needs a proper educational system with a proper structure. Something has to happen, and what we are doing is a step down that path."
Mathias Postel, Course Manager Britannia Row

When asked if the UK should copy the model of his native Germany and have proper three-year apprenticeships as 'Event Technicians', Postel claims that the German system leads to apprentices being 'over-educated', but he admits, "The industry needs a proper educational system with a proper structure. Something has to happen, and what we are doing is a step down that path."

Making It Possible

The course was partially made possible when Britannia Row moved operations from Wandsworth to the new company headquarters in Twickenham, leaving the old premises free for use as a school and a space for setting up and trying out full P.A. rigs. The course has been written by Britannia Row staff under guidance from Course Director Barry Bartlett, who until now has been engineering live sound for such diverse acts as The Royal Philharmonic Orchestra and Pete Townsend.

Until now, Britannia Row has taken on apprentices for one year and of the ten that have been hired, eight have become full time employees. The new training scheme will feed into this system, replacing the hit-and-miss of getting the right CVs in the post and providing employment for four apprentices a year.

The average age of trainees, according to Postel, is around 30, and includes people who already work in live sound but need to expand their knowledge and horizons, as well as those seeking to change direction or start their own P.A. company.

On a purely personal note, I have to admit that when I first heard about the course, I greeted the news with a great deal of scepticism. But when I looked at what else is on offer specifically for live sound (which, to be honest, is not much), I realised that this course may offer trainees a unique opportunity to be taught by the best in the business. Given the lamentable state of large parts of our vocational education system, this seems to be a step in the right direction and perhaps should be a model for us all.

Rather than bemoan the poor quality of the CVs we get from floods of unsuitable candidates, perhaps all branches of the audio scene should be creating their own courses geared to the specific needs of our industry.

training.britanniarow.com

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Sound Production In Budget Film Making

I've got a theory that in the relatively small city where I live, York, I could stand on any street corner and throw a stick and probably hit half a dozen film makers. York has two universities and both have film schools, so the place is overrun with young/keen/budding/amateur/semi-pro film makers (delete as applicable). It's a picture that can be replicated across the country and probably across the planet.

It's now easier than ever to get hold of decent video equipment, and the number of ways to get a film "out there" stretches far beyond the ubiquitous YouTube. If I were an academic, I'd call it the democratisation of film-making.

And yet: as an occasional lecturer at one of the local film schools, I can testify that as the quality of the visual goes up with each leap in technology, the standard of sound production doesn't. I've lost count of the number of times I've been asked to "sort out" the sound on a budding director's pride and joy (usually for free).

So is the audio side of the industry still a mystery to newcomers? And just how do you produce top quality sound on a tiny budget (most of which has been spent on camera hire anyway)?

I caught up with three young film makers, Dan Vivash, Will Jefferson, and Jamie Anderson in a coffee shop. Dan and Will are both production sound guys, while Jamie is a Screenwriter and Director. After plying them with caffeine I fired a few questions their way. Starting with getting a brief resume:

Dan: I started off at University doing a general film and TV course. An opportunity came along to do sound on a film and I jumped at it. I'm really glad I did. I've worked on corporates, commercials, films; whatever I can get. I felt sound was overlooked. People shied away from it because they thought it looked difficult, but I thought, 'I'm really enjoying this and it's something I can do, so I want to take it by the horns.'

Will: I also went to Uni and did a very general film course where you got out what you put in. You found what you wanted to specialise in. I knew from the earlier days that I wanted to do something technical and felt drawn towards sound. It's an area that gets pushed to one side so I thought there was a gap in the market. I started off assisting on sets and since then have worked on projects in Europe, and it's been a great way into the industry

"It's difficult if someone comes up and offers you very little (or no) money to work on their film, when that's how you pay the rent and eat. Even if it could be a fun project, that doesn't help in the scheme of things."

Dan Vivash

Jamie: I've shot two films so far, low-end stuff but bigger than student films. I've now set up a production company in York. I went to Uni in York, and before that the Northern film school.

AM: Is there a problem with film makers not even realising how important sound is?

Dan: It's difficult if someone comes up and offers you very little (or no) money to work on their film, when that's how you pay the rent and eat. Even if it could be a fun project, that doesn't help in the scheme of things. And even though you can rent equipment and it's not as expensive as lights or cameras, it does still add up. It's one of those things where you have to weigh up: if they're not going to pay me, will it do anything for me in the future?

Everyone will tell you, 'Oh, there'll be paid work in the future,' but you learn very fast that isn't true. And if it's going to be night shoots for two weeks and they're not paying me, is it that going to take a year off my life?

AM: What kind of problems do you face when you're on a budget?

Dan: Kit is the most obvious problem – when people expect you to have it but there's no money to hire it. With low budget film-making, you to have live with things and maybe adapt. You have to learn the point where the take will be ruined. And it's more important than ever to take someone from the sound team on a location scouting trip, so we can spot problems. But people don't often ask us, they just expect us to turn up and solve the problems there and then.

AM: What about practical things? For example, on big budget films like *Bond*, they can afford to carpet a location they're shooting in, just to deaden the footsteps. I'm guessing you can't do that!

Will: With the carpeting thing, although you can't cover the whole floor you can glue bits of carpet to the actors' shoes! I've done that. So you only need twelve inches of carpet rather than five hundred square feet. You can also make your problems smaller; like directors wanting to hear sound when there's no proper monitoring system. We'll often backwards-engineer a radio mic to send a signal to the director.

And I agree with Dan in that if you've no budget for

post-production, bring us on location scouts. Planning is so much more important if there's no cash. I've only worked on a handful of films where I've seen the costumes before the day of filming. When you don't have a huge range of mic options to choose from, that doesn't give you much time to work out what to do.

Dan: Wind of course is the big issue for anyone working with sound out of doors; with people not having the right equipment like a blimp or windjammer. We were filming once at the top of a big hill in Halifax, outside a medieval mansion. We didn't have the equipment so we ended up adapting what we had. We put the microphone behind someone, so the wind was blocked by the person. We even had people crouching with two umbrellas to help .

Will: I remember being told not to run microphone cables near mains cables. I've learned techniques like getting a polystyrene cup and making holes in it so the two cables are kept apart.

Jamie: With my first film, we had a sound designer with no experience at all. So we went out and looked beyond the University to find someone with the right skills. That was the crucial thing – not just to settle for second best. You can't cut corners in sound. But people do.

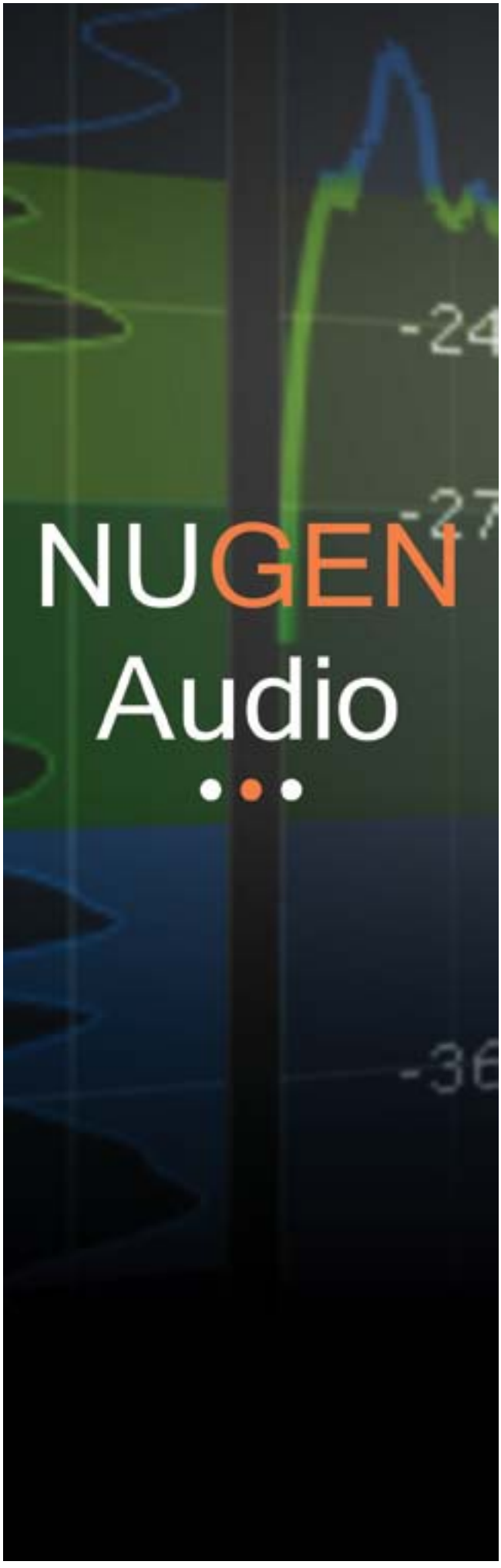
AM: Do you think that with some low budget film makers, they get so excited about their baby that they forget about sound entirely?
Will: Yeah, they hear this word 'auteur' early on and think that even if they're a second year film student, 'I know best'. They think they're Kubrick and know every part of their film and every inch of it. They take on too much. Whereas the greatest compliment a director can give is to admit they don't know what all the crew are doing, but trust us to make things right.

AM: Jamie, you're a director. How do you go about getting good sound on a shoestring?
Jamie: I've been lucky enough to get hold of a proper sound designer and composer, and he's taught me the importance of audio. I think a lot of film makers get lost in the visuals and overlook the sound. On a film I've been making, *The Death of Jack Hamilton*, we've been using an H4n and a Tascam and we've been improvising. We even made our own windshield out of two bird feeders and some insulation material. It worked quite well.

AM: When students or low budget film makers are deciding who's going to do what on the project, is it a bit like picking the football team at school – sound is left to last?
Jamie: At University, the sound role is always the last role anyone wants to go for on a project. Everyone thinks it's a boring technical job. One guy I was at University with did pick it, and now he loves it. But I think a lot of people think it's too difficult and are put off. Plus people think film-making is purely about how things look.

AM: There's never been an easier time to make and distribute films. Do you think sound is still overlooked?
Jamie: Every time I look through short films on sites like Vimeo, it's always about the visuals. Or they've just put a music track across the top. There's very little quality recorded sound. The DLSR boom after Canon launched the 5d MkII made hi-quality professional kit more accessible, but there's quite a debate about whether sound is catching up to the visuals. You can buy a Canon 550 camera for £350, but how much will it cost to put a sound kit together? I'm not sure of the answer but I think it will be more.

Will: You've got to fight for your art. In the thirteenth hour of a low budget shoot you have to be prepared to say, 'No, they just crossed lines and talked over each other. You won't be able to edit that together and you can't afford to re-do it late.' You have to care about what you do. That costs nothing.



Pinewood Update

The Pinewood Studios Group has been investing heavily in its film and TV production facilities, with two Atmos installs and a new gallery. PAUL MAC pays a visit.

The Pinewood Studios Group core UK operation is based just slightly to the west of London in three prime studio complexes – Pinewood, Shepperton, and Teddington. The group has other significant interests abroad, including studio sites in Toronto, Berlin, the Dominican republic, and Malaysia; as well as a Los Angeles sales office.

Andrew Smith, Director of Strategy and Communications, notes that the group has invested, heavily in the UK operation, with a planning application (Pinewood Studios Development Framework) on the table at the moment representing an additional £200 million investment. Despite some more misleading figures that came out earlier in the year, The Pinewood Group's UK business is still growing, and according to an interview with Non-Executive Chairman Michael Grade on the BBC, the studios are turning business away – hence the application to expand studio facilities – 100,000 square meters of extra space, including 12 new stages.

As if to illustrate this growth, the Group has refurbished two of its biggest dubbing theatres – the Korda and Powell theatres (Shepperton and Pinewood respectively), bringing them up to spec with full Dolby Atmos systems. It has also invested in television with a new HD 5.1 gallery, increased lighting infrastructure, production accommodation, and new studio floors.

Korda & Powell

The Atmos installation in the Powell theatre was finished in October 2012, ready for its first Atmos mixing project – Danny Boyle's *Trance* (see last month's issue, Final Cut). The Korda theatre has since followed, and the finishing touches were being made to that last month.

Nigel Bennett (Operations Manager, Digital Content Services), notes that the Korda had a more drastic uplift as there were changes they wanted to make over and above the additional speaker channels: "We've completely refurbished the whole room – gone back to bare walls. We've taken the plinth out and moved the desk forward to its original position."

Both rooms are equipped with Euphonix System 5 consoles, Pro Tools, and now JBL-based Atmos systems.

"…we've actually gone back to the bare brickwork and recessed the speakers… It looks very good."
CB, Technical Bloke,

There are two other rooms – Pressburger (Pinewood) and Theatre 1 (Shepperton) that also have the Euphonix consoles in, while Pro Tools/ICON/ProControl occupy most of the other rooms around the studios.

"Darren [Darren Woolfson, Group director of technology] and the team refurbished the Powell theatre maybe four years ago, and it was looking really nice as a 5.1/7.1 room," says Bennett. "For the upgrade to Atmos, we've got a a lot more headroom in the Powell that made it easier to put the overheads in; but the surround speakers – because it's fabric, acoustic treatment, to brick wall – it's very hard to hide the speakers. But in the Korda, because it's a self-contained building, we've actually gone back to the bare brickwork and recessed the speakers. We've also gone up into the ceiling for the sub cabinets and overheads. They are channelled in acoustic panels, so it's all completely flush. It looks very good."

Acoustic refurbishment and forty-odd channels of Atmos is not an inexpensive proposition, and Pinewood has committed to two rooms already, which signals a certain amount of confidence in the new format. "I don't think we're just talking about original language mixes," confirms Bennett, "We're looking at international versions as well. Russia is a market place I'm having a lot of contact

with at the minute for Atmos mixing."

Darren Woolfson: "I have more confidence in Atmos than in 3D. We had some confidence in 3D – we made some investments, delivered a number of 3D projects, and we continue to do that. But I think... if you want to compare those two, 3D works for some and not for others – there is mixed opinion about it. I defy anyone to go into an Atmos room and say, 'Oh no, I don't like that, I wish it was only 5.1'.

"It *is* better. Whether for an individual cinema the commercial model exists to put the investment in is another matter, but it is a leap forward and it's unquestionable."

Of course, that the cinemas make a success of the Atmos format is crucial to production facilities that are investing in the format. The roll-out is more advanced in the US than it is in Europe so far, with the AMC Cinema chain taking a lead and charging extra for the pleasure of hearing the Atmos version.

Means To An End

The Atmos rollout is going on, despite the small issue that the toolset isn't quite

The Munro Factor

Munro Acoustics has been responsible for much of the acoustic work around the Pinewood Group sites in recent years, and has also been at the cutting edge of Dolby Atmos installations, being involved in Dolby's own preview theatre in London and another major stage and new digital media centre in Hollywood. Thus the job of re-purposing the Powell (Pinewood) and Korda (Shepperton) theatres for Atmos fell to Munro, and we spoke with company founder Andy Munro about the the re-fit, and about Atmos itself.

Paul Mac: "Apparently the Korda theatre re-fit was extensive – right back to the walls?

Andy Munro: "Yes, we did quite a lot of work in the Korda theatre. We did all of the pre-construction for that, and we did the acoustic treatment at the same time – and moved the desk into the correct position for the room. It was always a bit too far back really, which, looking back, was a preference... But it's more appropriate where it is now.

"It was a good opportunity because there were things that we knew we wanted to change and never really had the time to do before. It certainly comes out a lot better now we've got all the reverb times and the direct to reverb ratios bang-on; it measures very well and it sounds tighter and cleaner than it did before."

PM: Was there much acoustic work specific to the Atmos install?

AM: "It was really question of re-doing the bass absorbers and redistributing the acoustic treatment a little bit to get it a bit more even and a bit more diffused than it was before.

"When we started we were a bit daunted and I actually had a few meetings with Dolby to try and get an insight into how it felt rooms should be prepared for such a large speaker array. My inclination is that the rooms should be drier than the standard specification because you're dealing much more with object sound as opposed to distributed sound, and that means you need a bit more direct sound and a bit less room sound to get the overall effect.

"At the same time as we were working in the Korda theatre I was actually out in LA working on the Dolby rooms, doing the same sort of job out there but in a much bigger theatre – the old 'A Stage' at Disney. That was a good opportunity because I had direct access to the rooms for quite a few weeks – it was a major re-fit. So we did a lot of measurement, and I went out there two or three times, and we got the room tuned exactly the way the mixers like it.

"We ended up with a room that was not considerably drier, but certainly drier as far as what the speakers see, so to speak – matching the acoustics to the speaker system. And it does make a big difference. The imaging improved a lot."

PM: What do you think of Atmos in general? Is it going to command an audience?

AM: "Atmos gives the sound mixers the possibility of doing some crazy things, if they are inclined to do it and there's someone prepared to pay a little bit extra to go to an Atmos theatre. I'm sure it's money well spent.

"I've listened to quite a few movies that have been remixed in Atmos. It adds something to the sound that's actually quite hard to quantify; it's a bit like when you go to a concert and the sound is spot on – you feel involved in the sound somehow; you feel inside it, which is an experience that I've never really had with cinema sound because you are always aware of the screen and the room being separate entities. It does draw you in.

"I find it more involving than 3D, actually; I find 3D very distracting. You get this wonderful 3D image in mid-air in front of you and everything else is squashed into what looks like an out-of-focus shot in the background. Personally I don't like that; I don't find it photographically very pleasing.

"I was cynical about Atmos to start with, but I am very, very impressed with it and I think a large part of that is the sound system. If they [JBL] hadn't made the improvements with the sound systems, I think it would be struggling a bit to justify itself, but that's part and parcel of it... I'm sure other speaker systems are available!"

PM: JBL stepped up to the plate with the latest cinema speakers then?

AM: "I'm a speaker man through and through and I'm not easily impressed by horn-loaded stacks of speakers, but I must say they've done a good job.

"They've controlled the directivity much better. They've got this controlled directivity now where the Q-factor, if you like – the directivity index – is 10 for the important bits – the mid-range and all of that. I know from previous work that it is absolutely spot on, and if you can maintain that sort of directivity, which is about a 90-degree coverage angle, it's just about right for a re-mix theatre or a medium-sized cinema as well. It just gives you the right control over the direct sound from the speaker and the room acoustic.

"We've just finished doing theatre 1 at Shepperton as well. They've installed a new JBL array in there as well, and we've just finished tweaking and re-aligning it."

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complete. "We need to get the work flows," says Bennett. "This is where it's very much still in beta stage, but once the plug-ins come in and editors can start manipulating tracks in the cutting rooms, we will just start off any film for Atmos."

With two Atmos theatres in the group, each with an additional Euphonix theatre on site, Pinewood is prepared for pretty much anything. They have already done tests moving mixes between rooms and are very pleased with the results. Bennett: "If you just have one room you're a bit tied. Certainly the big budget films might want to work double-stage – Atmos pre-mixing. Then with the automation on Pro Tools and our Euphonixes, we can pull everything together to one mix on one of these consoles, to the schedule. That's a real key for us – that we can take on a real big feature under time constraints, in Atmos. The big films will be eventually be mixing that way – from start to finish."

"I defy anyone to go into an Atmos room and say, 'Oh no, I don't like that, I wish it was only 5.1'."
Darren Woolfson, Pinewood

These updates are a small part of the on-going investments from the Pinewood Group. New data requirements will be supported by the Pinewood Group's extensive IT backbone; and with the group's commitment to its 'Digital Dailies' and digital cinematography facilities, it has the capability to see a project all the way from shooting, through post production – including an Atmos mix – and all the way to DCP.

Atmos

If you've missed it, Atmos is a new object-based format from Dolby currently intended for cinema distribution. At it's base layer there is a 9.1 'bed' of conventional tracks, with the additional two channels being for two (left and right) overhead arrays. On top of that, you can specify audio objects that are panned independently. The results of the object pans are not 'printed' – only the vector information than describes a pan is recorded, along with the object source. Currently, with a 9.1 bed, up to 118 objects are available for use at any one time, through up to 64 separately addressable speaker channels (the number of replay channel is dependant mostly on the size of the room).

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Pinewood Update: TV

Pinewood's TV facilities are now officially top-notch. PAUL MAC meets two of the in-house team that has specified, designed, and built one of the best-spec'd TV galleries in Europe.

Pinewood's main TV studios has been extensively refurbished at a cost of over £6million, from new studio floors and new lighting stock, to a completely new Gallery, shared between two 9,000 square ft. studios. The idea was always to bring an ageing facility to the forefront of broadcast facilities available in Europe.

I met Barry Cooke, Chief Engineer, and John Battersby, Broadcast Engineer, in the audio control room in the Pinewood TV gallery to talk about the new facilities, and the process from concept to reality. **Barry Cooke:** "We had a basic SD infrastructure and had our own sound equipment – although not Calrec. Now I understand from sales that the amount of interest is huge; everybody likes it. They have been impressed by the flexibility.

"The overall design is around big screens and multi-viewers, so you can configure it into whatever show that you want. It switches between, say, *The Lottery* and *Count Arthur Strong* at the push of a couple of buttons. Everything feeds into the vision mixer or into the sound desk, and is all assigned accordingly.

"One thing we had to watch out for here was the latency because we've moved away from CRTs that had anywhere between a field and a frame delay depending on where the scanning dot was. It wasn't instant... We went for the Sony OLEDs, which is a field; so the lip-sync is very acceptable. The BBC were the first people in here and they were happy with it."

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The new Pinewood TV gallery sound studio has at its heart a Calrec Artemis console with Calrec Hydra networking to fibre connections and stage boxes on the studio floor. The substantial monitoring system is an ATC surround system (with Genelecs in the vision studio) sitting on bespoke stands by Towersonic (Surrey, UK). The custom furniture in the room was made and installed by MW Video (Hampshire, UK), and acoustic treatment and set-up of the room was undertaken by Munro Acoustics.

The new intercom system is an RTS, which in part uses existing infrastructure as it was previously an RTS system as well. It's based around an ADAM modular intercom matrix (capable of incorporating up to 1,000 users). It has dual redundancy in power supplies and controllers.

Available outboard includes CEDAR DNS noise reduction and Lexicon effects.

The grams position uses dual SpotOn workstations, which also run Adobe Audition editing
software. For multi-track back-up and recording, there's a JoeCo BlackBoxRecorder, and there are Denon two-track playback/ingest facilities.

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PM: Can you tell me about the design process for the audio studio?

John Battersby: "To get the premiss of the design we did a lot of research with a lot of sound supervisors and grams ops to find their preferred way of working. And working out what sort of kit was around on the market. That's how we hit upon things like the Lexicon reverb units, which seem to be a favourite of the sound supervisors.

"It's a 'get you going' set of kit. It's enough to do most basic shows, but then if they're going to be doing big music shows they will want to bring in their own gear... Which meant we needed to open the system up to allow the flexibility of lots of inserts and I/Os. You could have a big rack in the corner of all the outboard kit if necessary. We've got embedded I/Os, we've got AES I/Os, we've got analogue I/Os. And the way the desk works you can either treat them as inputs and outputs or as sends and returns.

"We've got another load of I/O units in what we call the engine room – a patch-bay that will take you out onto the studio floor where we have fibre-linked Calrec Hydra stage boxes. You run out your fibre and that opens up a big 2U XLR panel. Anything on that is then routed by the system. You can route anything into the system or around the system."

BC: "Though part of it is legacy facilities, because we had XLR tie-lines and it seemed silly to throw them away. This is our first venture into fibre. We left a fair few in because someone is always going to want copper for something."

PM: What were the main reasons for going with the Calrec?

BC: "Having worked live for most of my life, I have a thing about having it fully dual-redundant. This offers that. There is a pair of every card, every power supply... In fact it is a pair of desks... Except for the surface; but if a panel dies you can assign another panel to do its job, so it isn't a show stopper. The PC is only there to actually store information. Everything is essentially hardware and firmware."

JB: "If the PC falls over, nothing stops. Unfortunately the competition wasn't as robust in that respect."

BC: "Also, Sky has Calrec desks as well, and a lot of the OBs too – so there are a lot of operators who can use Calrec."

"Audio-wise I think it sounds excellent and everyone agrees. Signal-to-noise and so on these days – they are always superb, so I don't think I could choose it on audio spec alone, but certainly with Calrec's reputation, and other users, for me it was a no-brainer."

PM: The grams position is currently behind the console?

JB: "There are two schools of thought in the industry. I think the BBC is very much for putting the grams op behind the mixer and they work separately – they have their own workstation. But the Calrec now offers the flexibility to effectively aportion into two separate sections – you can make a sub-desk at one the end of it, which can be your grams desk. That means you can work side by side.

"So, we did both. We put the grams desk and rack on wheels, and, with everything being on sliding looms, it can all slide over to the corner position. You can then set the main desk up to be the grams desk, and in the gap this desk swings in and you've got your SpotOn equipment by your side." AM

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Recorders

This month's expert, HHB's Martin O'Donnell, highlights some of the latest developments and features in the increasingly vast array of recording options that are out there – something to suit every job, no matter how big or small.

EXPERT Witness

Long gone are the days when Compact Cassette, DAT and MiniDisc ruled the world of field recording. The latest generation of portable recorders are remarkable devices able to capture high quality audio with wide dynamic range at impressive sampling rates. Versatile high-capacity recording media including built-in memory, removable Flash cards, solid-state drives, and traditional hard disk, combined with comprehensive I/O, plus sophisticated recording and editing functions, make them the preferred tool of choice for professionals from a variety of disciplines. Add to that external microphones that can be plugged into smartphones running apps enabling 24-bit/96kHz audio capture/edit plus USB class-compliant audio interfaces that connect to tablets for multi-channel recording, and we see an evolving professional audio landscape already very different to the one from just a few years ago.

Handheld Portable Recorders

Offering rugged construction, high-quality audio recordings, and professional features in an extremely compact format, handheld portable recorders have become a very popular method of recording in the field. These durable devices offer a wide variety of recording formats (BWAV, WAV, MP3) with high sample rates and bit depths that record up to 192 kHz or more at 24-bit. The recorder's internal memory appears on the desktop as a mass storage device (external drive) of a PC/MAC and requires no additional software or drivers. Lower quality MP3 files will offer recording times in excess of 80 hours, while replaceable or rechargeable batteries provide up to 40-plus hours of recording time.

Professional handheld devices feature high-quality internal microphones that capture uncompressed, mono, or stereo WAV recordings at 16- or 24-bit resolution in a variety of polar patterns, with additional external microphone inputs to record additional tracks. Features such as automatic level control, internal loudspeakers, filters, on-board dynamic and effects options, complex editing features, and USB 2.0 port connections have made handheld portable recorders an acceptable alternative when a larger recording system is not needed. A range of professional accessories are available to increase memory and for protection against wind and other unwanted noises. Many of these recorders can also be attached to a video or DSLR camera to capture HD audio during filming.

The portable recorder market also includes battery powered digital recording microphones with interchangeable microphone capsules and built-in SD card slots that record directly to the body of the mic, thus eliminating the need for any external recording devices.

Smartphone Recording

The latest development in portable recorders involves simply plugging a microphone into the input of a smartphone and recording to the phone's internal memory. These microphones turn a smartphone into a broadcast-quality portable stereo recording device. Smartphone microphones provide optimised A/D conversion in a variety of configurations and polar patterns. There are even wearable lavalier microphones on the market that connect directly to a Smartphone, negating the need for phantom-powered pre-amps or wireless systems.

Sophisticated smartphone apps provide the ability to record up to 24-bit/96kHz, edit and send high-quality audio files over a mobile or Wi-Fi network, in addition to features like adjustable internal pre-amp level control, equalisation effects, non-linear editing, geo and photo tagging, and one-touch publishing to SoundCloud, Dropbox, email, FTP, and iTunes.

Multi-channel Portable Recorders

Recording natural sounds in the field is an art form that has been developed by audio engineers recording for TV, film, and music production for decades. When these situations require more elaborate professional recording equipment that captures low level ambient noise, a multi-channel portable recorder is commonly used. Recording audio in these environments requires battery-powered, low-noise equipment with an extended frequency response. These recorders typically record to CompactFlash media, an internal hard drive, external FireWire hard drive, or DVD-RAM; and offer storage capacities in excess of 160GB. There are a variety of field recorders that offer multiple I/O options with the ability to create stereo mixes and additional aux mixes for capturing source audio and ambient sounds simultaneously.

Multi-channel portable recorders typically offer connections to other field equipment, including video cameras, portable field mixers, and wireless microphones. Built-in timecode generators are also offered with advanced models to ensure perfect sync between audio and video during post production. Surround sound microphones have also made it possible for engineers to capture field recordings that put the viewer in the centre of the action.

Analogue and digital I/O with microphone or line-level inputs with 48V phantom power, peak limiters for microphone signals, and adjustable high-pass filters are common features of these recorders that ensure optimised sound quality at the source. In the digital domain, balanced AES/EBU inputs are also provided for interfacing with digital equipment, including digital microphones using the AES42 format.

Choosing A Recorder

Choosing the right portable recorder for the job depends largely on budget, as they range in price from under £100 to a few thousand. Another determining factor is the channel count and other equipment that needs to be in the chain. If you require sync to additional video equipment and numerous external microphones for stereo or surround sound recording, then a multi-channel portable recorder is probably the best choice. However, the quality of handheld recorders has been developed to the point that the user can capture broadcast quality multi-channel recordings in a lightweight, handheld device, or even to a smartphone. Dedicated digital recording microphones are another attractive alternative, as they offer high-quality recordings directly to an SD card found in the body of the mic.

Expert Witness

Martin O'Donnell is HHB Communications Ltd. Director of Sales. HHB is a leading professional audio technology supplier that has been delivering the latest and most innovative pro audio equipment solutions to the world's top broadcasters, recording studios, post facilities and systems integrators out of its London HQ for over 37 years. Contact Martin O'Donnell on +44(0)20 8962 5026 or martin.odonnell@hhb.co.uk.

www.hhb.co.uk

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Portable

You can make all the noises you want, but without a recorder, nobody will know you made them. If you need to get it down, get one of these recorders...

[1] The Sound Devices **788T** and **788T-SSD** are eight-input, twelve-track digital audio recorders designed for production sound. The eight analogue inputs accept microphone or line-level signals, provide 48V phantom power, offer peak limiters for microphone signals, and adjustable high-pass filters. For additional flexibility, the 788T accommodates eight channels of balanced AES3 digital input, and six channels of balanced analogue line-level and AES3 digital output. Support for AES42 digital microphones is also available.

The **755T** is an ultra-portable, four-track file-based digital audio recorder. It features two channels of Sound Devices microphone pre-amps with phantom power, limiters, and high-pass filters. The 744T records uncompressed PCM or compressed MP3 audio to its internal hard drive, a Compact Flash card, and an external FireWire drive. It can be connected to Mac OS or Windows computers with FireWire 400 for high-speed data transfer.

The **664 Field Production Mixer** is the new flagship in Sound Devices' line of portable audio mixers. Building on the foundations of the popular 552 mixer, the 664 has six input channels and four output busses. All inputs and outputs are recordable to both CF and SD cards. Recordings are either 16- or 24-bit broadcast WAV files.

www.sounddevices.com

[2] The Nagra **PICO** is an ultra-miniature handheld recorder with an internal 4GB Flash memory. It offers an automatic gain control system, a noise cut low frequency attenuation input filter, and VOR (Volume Operated Recording).

The **LINO** is a handheld solid-state audio recorder, offering instant start-up, one button recording, automatic level control, internal loudspeaker, and a low cut filter. Switches on the rear of the recorder give the user rapid access to important functions.

The **SD** is a rugged handheld recorder that accepts a range of Nagra-made mono and stereo clip-on microphones. A mono XLR microphone cable allows an external dynamic microphone to be used.

The Nagra **LB** is a two-channel universal digital audio recorder. It offers two analogue audio inputs and a single stereo digital input. It is fitted with an internal 2GB NAND Flash memory, as back up for the extractable compact flash card and for spontaneous memory while the extractable card is changed. It is also equipped with a built-in audio editing system.

The Nagra **VI** is a an eight-channel digital audio recorder. There are six analogue inputs, four of which are equipped with microphone pre-amps; plus two AES inputs. It is fitted with a full SMPTE/EBU time code system including a chase synchroniser.

www.nagraaudio.com

[3] Zaxcom's **ZFR300** records on microSD cards and has a built-in SMPTE timecode reader/generator. It can be used as a replacement for wireless mics on reality television-type productions where there is poor RF range, interference issues, or no available frequencies are present. With a timecode jam, any quantity of ZFR's can be used in sync all day. Files can be output as either 24-bit/48kHz broadcast WAV files or MP3 files.

The Zaxcom **Maxx** is an audio mixer, RF transmitter, recorder, timecode reader/generator, and visual timecode slate, all in one package. Maxx comes standard with the ability to record the two-channel mix output on a CompactFlash or SD card (with CF adapter). Files can be recorded at up to 24-bit/192kHz with a dynamic range of 137dB. There is also a six-channel recording option, giving the ability to record four pre-fader tracks along with the two-channel mix. It can also record MP3 transcription files with a linear timecode track.

Nomad 12 is a complete location sound recording system for video productions. It has a complete set of DSP effects and an integrated timecode slate. The six hardware faders can be routed to any or all of the six mic/line inputs.

www.zaxcom.com

Rackmount/Studio

[1] Allen & Heath's **ICE-16** records 16 tracks of audio directly to a USB key or hard drive. All the user has to do is connect the 16 analogue inputs to any line level source (such a mixer's direct outs), plug in the memory, and press 'record'. ICE-16 also functions as a 16x16 channel interface to a computer in the studio, streaming high quality digital audio at 24-bit/96kHz sample rate over FireWire or USB 2.0. Units can be linked when streaming over FireWire to expand the channel count.

www.allen-heath.com

[2] The Fostex **UR-2** is a 1U rack size stereo audio recorder that uses two SD cards and USB storage device as the recording media. The recording and playback file format is WAV, and it offers recording at 24-bit/96kHz. Using the FAT32 format, it is easy to directly transfer recorded files to a PC. The recorder adapts to a wide variety of uses by offering Chain Play and Memory Play. The mic input located on the front panel offers 48V phantom power, which can be used for recording.

www.fostexinternational.com

[3] The **RADAR 6** hard disk multi-track recording system from iZ Technology offers direct SATA recording. It can record 24 tracks at 48kHz to external USB 2.0 or USB 3.0 drives, and thumb drives. RADAR systems are fully customisable, offering choices of two analogue I/O designs available in eight, 16, or 24 channel configurations; four multi-channel digital I/Os; and a wide variety of back-up and recording drive options. There are full front panel controls with tactile transport keys and a comprehensive multi-page touch screen.

www.izcorp.com

[4] The JoeCo **BlackBox Recorder** is a large-scale multi-channel recorder specifically designed for audio acquisition and capturing live performance. Available in both analogue and digital variants, the BBR1 can record or replay up to 24 channels of 24-bit/96kHz audio in WAV format. The BBR64-MADI and BBR64-DANTE versions of the recorder can record/replay up to 64 channels at standard sample rates. All models now support the replay of polyphonic WAV files. It is designed to be simple to use, requiring just the input and output connections, power, and a USB drive, before pressing 'record'.

www.joeco.co.uk

[5] Klark Teknik's **DN9696** is a high resolution hard disk recorder occupying 5U of rack space, offering 96 tracks of 96kHz audio at 24-bit, with nine hours of internal storage. It is a simple plug and play unit with dedicated play, stop, and record front panel transport controls. The screen based software interface offers in-depth control of both recording and playback functions. The recorder uses some of the features of MIDAS' digital audio systems, such as POPulation groups to view, colour, and edit tracks, and dual operator control of the system.

www.klarkteknik.com

Rackmount/Studio

[6] The Marantz **PMD580** digital audio recorder/player is equipped with balanced and unbalanced digital and analogue connectors, as well as USB 2.0 and RS232. Recording directly to CF card or Microdrive, the PMD580 will record in either PCM (16/24-bit) or MP3 file formats. Once recorded, the files can be automatically archived to a network drive, via the network connection, or transferred manually to a PC for editing and re-distribution. The unit can be programmed for scheduled recording and subsequent auto-copying of the recorded files to a local network.
www.dm-pro.eu

[7] Korg's MR-2000S-BK premium archival mastering recorder offers a 160GB hard drive in a single-rackspace unit. It features two-track simultaneous recording and two-track simultaneous playback. The advanced DSD format offers high fidelity recording at 5.6MHz, double the sampling rate of the SACD format. It supports multiple formats including one-bit DSDIFF, WSD and DSF, plus broadcast WAV and MP3 playback. It has Word Clock I/O to provide sync to additional devices, while MR Control Link can control the recorder functions on multiple units.
www.korg.com

[8] Roland's **R-1000** is a standalone, dedicated 48-track recorder/player designed to work with the V-Mixing System. The R-1000 can also be connected and used with any digital console that has MADI output capabilities by using the Roland S-MADI REAC MADI Bridge. The R-1000 is based on REAC and replaces analogue snakes with Cat5e/6 cable. It has a removable hard disk to ensure smooth integration with DAWs, and offers approximately 20 hours recording using 500GB HDD. It will record up to 48 tracks of 24-bit audio in BWF format.
www.rolandsg.co.uk

[9] Tascam's **X-48mkII** is the latest version of the original X-48 – the world's first standalone 48-track hybrid hard disk workstation, co-developed with SaneWave. It features up to 24-bit/96kHz recording across all 48 tracks, and offers native broadcast WAV audio file support and AAF export for compatibility with workstations like Pro Tools, Nuendo, and Logic. Support for eSATA hard drives and Gigabit Ethernet allows simple transfer between systems. It also has a built-in, automated 48-channel digital mixer, VGA display output, comprehensive editing functions, and DVD+RW back-up drive.
www.tascam.com

Portable

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[4] Tascam's **DP-008EX** is an ultra-compact SD multi-track recorder, with eight recording tracks. It has a built-in stereo condenser microphone and two mic/line inputs. The DP-006 is very similar, but with six recording tracks.

The **DR-680** is a portable multi-track recorder that allows up to eight tracks to be recorded to SD card media at 24-bit/96kHz broadcast WAV quality. There are six mic inputs providing 60dB of gain, and phantom power for recordings with condenser microphones. The six analogue input signals can be recorded along with a digital SPDIF source for eight-track recording. It has a built-in mixer with level and pan controls for each input, and the stereo mixdown can be recorded along with the six analogue input signals.

The **HS-P82** is an eight-track professional field recorder, featuring eight microphone inputs. Audio is recorded at up to 24-bit/192kHz WAV format to a pair of CompactFlash cards.
www.tascam.eu

[5] The Olympus LS series has a variety of handheld models to suit most needs. The **LS-14** features a mode dial, smart mode functionality, and a voice guide. It uses a TRESMIC system that teams up two internal 90-degree directional stereo microphones with a third omnidirectional centre TRESMIC, increasing the frequency range to 20Hz-20kHz. The system can capture sound up to 130dB.

The **LS-12** also has feature mode dial and smart mode. It has two high-sensitivity and low-noise microphones set at 90-degree angles, and can capture sound up to 130dB.

The **LS-100** multi-track linear PCM recorder has a dual connector compatible with XLR and phone jacks, with a phantom power supply, and has an L/R independent recording level setting for adjusting to each L and R XLR channel.

The **LS-11** features up to 24-bit/96kHz sampling rate and PCM recording, and has an editing feature that allows files to be edited in the device.
www.olympus-europa.com

[6] The Yellowtec **iXM** is a recording microphone, featuring the LEA engine – a processor that ensures auto levelling in any environment with no clipping or artifacts. It has large, smooth, but rugged buttons that produce no handling noise, and are dust- and water-proof. It also features TOTO (twist-off-twist-on) exchangeable mic heads, allowing the user to change from cardioid, super-cardioid, or omni-directional pick-up patterns on the spot. TOTO auto sensing detects which type of mic head is being used and automatically adapts the DSP to the right parameters.
www.yellowtec.com

[7] The Fostex **DC-R302** is a professional stereo recorder with on-board three-channel pre-amp audio microphone/line mixer designed for use with video-capable DSLR cameras. It is housed in a rugged, extruded aluminium chassis, and features up to 24-bit/96kHz stereo recording to SDHC cards, three-channel mic/line mixer with XLR inputs, 48V phantom power, limiters and high pass filters, slate tone, flexible on-board headphone monitoring, remote DSLR control, and large LCD metering.
www.fostexinternational.com

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"[...] They have plenty of detail and the fact that the response is even – from low levels right up to their surprisingly punchy version of loud – means you could mix on them very happily. Factor in the price and you've got two speakers punching well above their weight. Roland Stenz certainly knows a thing or two about loudspeaker design."

Stuart Bruce, Future Music Magazine

MusicTech
The magazine for producers, engineers and recording musicians

SC205

"[...] Two things stand out from the off: nicely controlled, clear bass, and a remarkably open and deep sound stage. With natural acoustic recordings you get a real sense of the recording space."

Huw Price, MusicTech Magazine

AudioTechnology

SC205

"[...] I've had a pair of SC205s set up beside my usual Near fields and I've found them to be easy to listen to with a neutral tone that doesn't wear your ears out during long sessions...
Due to their size the SC205s will probably be best suited to home/project studios but they could also be used by professional studios in small rooms, as part of surround or mobile setups, or for music playback installations."

Mark Woods, AudioTechnology Magazine

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Portable

[8] The **FR-2LE** from Fostex is a compact audio recorder which records to CompactFlash in broadcast WAV format at 24-bit/96kHz quality. It is equipped with two professional phantom powered XLR microphone inputs (XLR-phone combo), complete with precise control over the recording level. It has a long battery life, running for up to eight hours on NiMH batteries, and a recording time of over 12 hours at 16-bit 44.1kHz.
www.fostexinternational.com

The Marantz Professional **PMD671** is a solid state device that can record audio files to Microdrives or Compact Flash cards. Features include non-stop recording with six hours of battery life; menu-driven remote operation; and an EDL marking system for creating new files on-the-fly during recordings.
www.dm-pro.eu

[9] Marantz Professional's **PMD661 MKII** is a robust handheld recorder. It features balanced mic and balanced line XLR inputs, as well as unbalanced line outs on RCA connectors and a secondary unbalanced line in on 3.5mm mini jack connector. Also included is a high resolution 24-bit/96kHz recording option (PCM). The retake feature takes the user back through the previously recorded audio to edit the record start point.
www.dm-pro.eu

[10] The Marantz **PMD620** MKII is a high performance handheld digital recorder that records to SD/SDHC Flashcard media in either PCM or MP3 audio formats. Features include a built-in stereo condenser microphone array for point and shoot recording, and an intuitive control surface for single handed operation, with thumb operated transport wheel and a red illuminating record button. Recording settings are selectable between those for high quality music recording to extended voice recording.
www.dm-pro.eu

[11] The Aaton **Cantar** is a multi-track digital sound recorder. There are nine rotary analogue faders, plus six linear mixer sliders, and has what Aaton claims is the largest display surface of all portable recorders, simultaneously showing every critical recording parameter. The five mic inputs feature high quality impedance transformers and three stage proprietary pre-amps. The Cantar allows stereo monitoring of the complete Soundfield B-Format, including 5.1, with no extra accessories.
www.aaton.com

[12] Aeta Audio's **4MinX** is a digital multi-channel mixer and multi-track recorder in one unit. It offers mixing and recording of 5.1 or 7.1. Features include four mic/line inputs, two stereo line inputs, and two AES inputs configurable for AES3 or AES42 to handle digital microphones. The versatile routing allows each input to be assigned to one of the 12 available outputs (four lines, two aux, and three AES).
www.aeta-audio.com

[13] The **L-300** from AEQ Broadcast is a handheld digital recorder. Features include the ability to record and edit linear PCM and MPEG compressed audio and support of the BWF file format, allowing for easy integration with radio automation systems. It records to SD/SDHC cards, and has a mechanical switch to activate automatic gain control. It has a built-in microphone with connections for mono or stereo external microphone, including an XLR adaptor.
www.aeqbroadcast.com

Smartphone/Tablet Apps

[1] The RØDE **iXY** is a recording microphone for iPhone, iPad, or iPod touch. It offers up to 24-bit/96kHz recording and on-board high-fidelity A/D conversion. At the heart of the iXY is a matched pair of half-inch cardioid condenser capsules, fixed in a perfect 90-degree near co-incident alignment. The iXY is supplied with a foam windshield for outdoor recording.

RØDE's **smartLav** is a professional-grade wearable microphone that connects directly to a smartphone or tablet via a standard TRRS connection. It is compatible with the iPhone, iPad, and iPod touch, in addition to a wide range of TRRS devices. The microphone employs an omnidirectional capsule so can be mounted in a variety of positions and orientations on the subject.

RØDE Rec is an audio recording app for iPhone and iPod touch, featuring 16-bit, 48kHz stereo/mono recording. EQ and dynamics include compression, high/low pass filter, and frequency cut/boost. Live input monitoring is available, and there are preset recording profiles for a range of common situations.
www.rodemic.com

[2] iRig **Recorder** is a recording app from IK Multimedia, available in iOS or Android versions. It has a variety of intuitive, non-destructive editing tools, plus eight intelligent effects processors. Recordings can be exported in either .m4a format or as an uncompressed .wav file. Also available is iRig MIC Cast, an ultra-compact microphone for iOS and Android; and iRig, a guitar and instrument interface adapter for iPhone, iPod, and iPad.
www.ikmultimedia.com

[3] Tascam's **iM2** turns the iPhone, iPad, or iPod touch into a high-quality stereo recorder. A pair of condenser microphones plug into the dock connector of the device. They are adjustable over 180 degrees; the uni-directional elements are arranged in an AB pattern. The iM2 contains its own microphone pre-amp and analogue-to-digital converter. Also contained in the iM2 is a stereo limiter, while the microphone level is adjustable with a knob on the side.
www.tascam.com

[4] Blue Mic's **MIKEY** – now on version two – turns the iPod or iPhone into a quality recording device; the MIKEY digital is available for later versions of the iPhone or iPod touch and for the iPad. It features two custom-tuned Blue capsules for stereo recording, a line-input, and USB pass through a 230-degree rotating design. It has three gain settings. It also allows seven angle adjustments for use in any environment.
www.bluemic.com

[5] **iTrack Solo** from Focusrite is a recording solution for the iPad. It features a Focusrite microphone pre-amplifier and an input to record directly from electric and bass guitars. It is also fully compatible with PC and Mac computers, and comes with software including Ableton Live Let and the Focusrite Scarlett Plug-in Suite. The iTrack Solo just has to be connected to a power supply and the iPad and it is ready to go.
www.focusrite.com

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Portable

14

15

16

[14] Korg's **MR-2** is a handheld recorder, which features multi-format recording and playback, including SACD ultra-high quality 1-bit DSD at 2.822 MHz, and multi-bit PCM formats up to 24-bit/192kHz. Recording and playback of DSDIFF/WSD/DSF/WAV/MP3 and MP2 are supported. The MR-2 has a high-performance X-Y configuration stereo electret condenser microphone that is capable of rotating 210 degrees. An analogue limiter, low-cut filter, and bass EQ are provided.
www.korg.com

[15] The Sony **PCM-M10** is a 24-bit/96kHz capable recorder with electret condenser stereo microphones, 4GB of internal Flash memory, and a microSD/Memory Stick Micro (M2) slot for expanded memory. Key features include a built-in speaker, cross-memory recording, digital pitch control, digital limiter, low-cut filter, track mark functions, a five-second pre-recording buffer, and A-B repeat capability. The recorder includes a USB port for uploading and downloading of WAV or MP3 recorded files.
www.sony.co.uk

[16] There are two Yamaha Pocketrak models. The **C24** weighs a tiny two ounces with battery and is less than one inch thick. A single alkaline AAA battery will power the unit for up to 26 hours in MP3 mode and 16 hours in PCM mode. The recorder offers digital audio recording at 24-bit/96kHz resolution, and has a built-in 2GB Flash memory. It features an onboard speaker and a non-directional microphone built into the body. It also has direct USB connection.

The **W24** features a wireless remote control, and provides up to 38 hours of PCM recording and 56 hours of MP3 recording from a single AA alkaline battery. It also features 24-bit/96kHz recording using an X-Y stereo microphone.
www.yamahaproaudio.com

Smartphone/Tablet Apps

[6] Apogee Electronics' **MiC** is a studio-quality microphone that makes a direct digital connection to iPad, iPhone, and Mac. MiC is a premium digital converter that features PureDIGITAL technology which delivers the true tone of a voice or acoustic instrument to the device. It has a cardioid condenser microphone capsule, and offers 44.1/48kHz, 24-bit analogue-to-digital conversion. There is a multi-colour LED for status indication and input level monitoring.
www.apogeedigital.com

[7] The Fostex **AR-4i** is designed for recording with the iPhone 4 and iPhone 4S, plus the iPad touch 4G using a dedicated adapter. It is equipped with three stereo inputs (line/mic) and has two plug-in powered condenser cardioid type microphones. Other features include a four-dot LED level meter for input metering, and thumb wheel input gain control. The Setup App is supplied free from the App Store.
www.fostexinternational.com

[8] Zoom's stereo **iQ5** features an adjustable mic element with both vertical and horizontal positioning. When connected to devices compatible with iOS 6.0 or later via Apple's new Lightening connector, the iQ5 uses Zoom's Handy Recorder app to capture 16-bit/44.1kHz mid-side stereo recordings. The iQ5 features a three-position mid-side stereo field switch, and a three-position gain control switch.
www.samsontech.com

[9] McDSP's **Retro Recorder** uses Audio Level eXtension (ALX) technology, which processes the audio recorded into an iPhone and balances out low and high level signals, allowing the iPhone to be used to make recordings with a wide dynamic range. The interface has a vintage tape machine look and feel, with a simple workflow. The archive of recordings can be searched, exported, and downloaded to a local computer using Wi-Fi.
www.mcdsp.com

[10] Roland's free **Air Recorder** app lets users wirelessly send and receive data between their Roland instrument and their iPhone. This allows the user to make digital recordings, and also to make recordings with the iPhone's built-in microphone when it is not connected to an instrument. Air Recorder supports Audio Copy.
www.roland.com

[11] n-Track **Studio** multitrack recording software is available for iPhone, iPad and iPod touch. Users can record and playback a virtually unlimited number of audio and MIDI tracks. n-Track supports simultaneous recording from multiple 16- and 24-bit soundcards, and real-time audio effects can be added non-destructively to each track. Tracks can then be mixed down into a single .wav file.
www.ntrack.com/ios.php

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"I honestly can't imagine what else you'd need to record and mix audio for TV and film, produce surround mixes, and record and manage foley and ADR."

Stephen Bennett

Steinberg **Nuendo 6**

DAW Software

It's just over a year ago that Steinberg released its 'definitely worth more than a point upgrade' version 5.5 of their flagship (that's a tired epithet isn't it? Shall we say 'King'? I think Nuendo is male…) Digital Audio Workstation (DAW). That version (reviewed in the March 2012 edition of *Audio Media*) was awash with new and updated features, many of them taken from Steinberg's more composer-orientated DAW, Cubase. It may seem incongruous that a company's leading DAW appears to lag behind its lower cost brethren (Cubase is obviously a male too!) in terms of features, but if you think about it, it makes common sense to utilise the much larger user-base that Cubase enjoys as a test bed for features that Steinberg might want to incorporate into Nuendo. So, as Steinberg has decided to crown this latest release with an integer increment, what can we expect from the latest version of the company's post production-orientated erm... flagship?

Nuendo 6 is available as a download for upgrades from previous versions, or the full version as a box – there's also an Expansion Kit (NEK) available that brings more of the composer-friendly features included in Cubase to Nuendo. The program requires a (supplied) USB dongle to run. You need to be online when authorising the software, but the process is fast and pain-free – and the use of the dongle means you can easily and freely move from copies of the software on your desktop and laptop – though obviously, you'll not be able not to use both at the same time!

On booting the program, the first thing you notice is that nothing important seems to have changed. The same clean lines are there, the extremely useable colour scheme remains and, most importantly, the stability for which the program is justifiably famous lies untainted. Nothing seems to faze Nuendo, however much stress I put it under, and the program didn't crash once during the review period. However, don't let this familiar face fool you – there have been some major and minor improvements and various additions to the program and changes to its user interface.

Mixing Things Up

When working with Nuendo, I spend most of my time in the mixer section as I usually use another DAW for composition purposes, only moving to Steinberg's program when I really need to mix to picture. So for me, one of the most visible changes to Nuendo 6 is the newly designed mixing section. It's displayed in a single, completely re-sizable window – which is perfect when I want to move from my 30-inch to my 15-inch screen – and it can work in full-screen mode if you want to place it on a separate monitor. These varieties of set-ups are made easier to manage by using the new 'View sets' feature that can be used to store channel configurations. You can open up to four completely different mixer configurations simultaneously, each with its own Visibility and Zone tabs that allow you to lay out your arrangement of channels. What this means in practice is that once set up, you can easily swap between sets of channels (strings, brass, or FX and Foley) without having to scroll through hundreds of the buggers. Important channel features, such as effects, sends, and inserts can be displayed however the user desires, while the Mix Inspector allows you to edit all of the parameters relevant to the selected channel. The mixer has extensive drag and drop features that let you easily copy effects between channels and slots. Channels and individual parameters can be quickly linked and unlinked, and a meter bridge and customisable Track icons mean that it's simple to see what's going on where in your project.

Processing Within

Most of the day-to-day processing needs are covered within the mixer itself without resorting to third-party

From the Manufacturer:

"Nuendo 6 is our latest iteration in the very successful line of Nuendo products. While we released Nuendo Live last year and Nuendo 5.5 the year before that, we were in constant dialogue with post-production studios and engineers, which led us to embrace the helpful contributions that have made this release what it is: a one-stop solution for audio-to-picture post work. With great new features like our new mixing console, IOSONO's Anymix Pro, loudness metering, and the complete ADR taker solution, we're sure to have addressed the ever changing needs of the worldwide community of post professionals."

Timo Wildenhain, Product Marketing Manager, Steinberg

The Nuendo Mixer has had a re-design...

THE REVIEWER

STEPHEN BENNETT has been involved in music production for over 25 years. Now based in Norwich he splits his time between writing books and articles on music technology, running his own Chaos studios and working in the Electroacoustic Studios in the School of Music at the University of East Anglia. He's also a filmmaker with several music videos and short films to his credit. www.stephenjamesbennett.co.uk

Even more Portastudio than ever before

DP-32: The 32-track luxury class among Portastudios

32 audio tracks (8 mono, 12 stereo), best-take function with additional virtual tracks, 40 channels during mix-down (32 playback channels + 8 input channels), dynamic and send effects, mastering effects including EQ, compression and normalisation, CD burner for mastering and backup, intuitive ease of operation …

DP-24

24 tracks on SD/SDHC card, high-contrast LC colour display, dynamic and send effects, dedicated controls for direct access to EQ, panorama and effect send channel, CD burner for mastering and backup …

DP-03

8 tracks + stereo master track on SD/SDHC card, built-in stereo condenser microphone, 2 XLR inputs with phantom power, reverb processor plus mastering effects, CD burner for mastering and backup …

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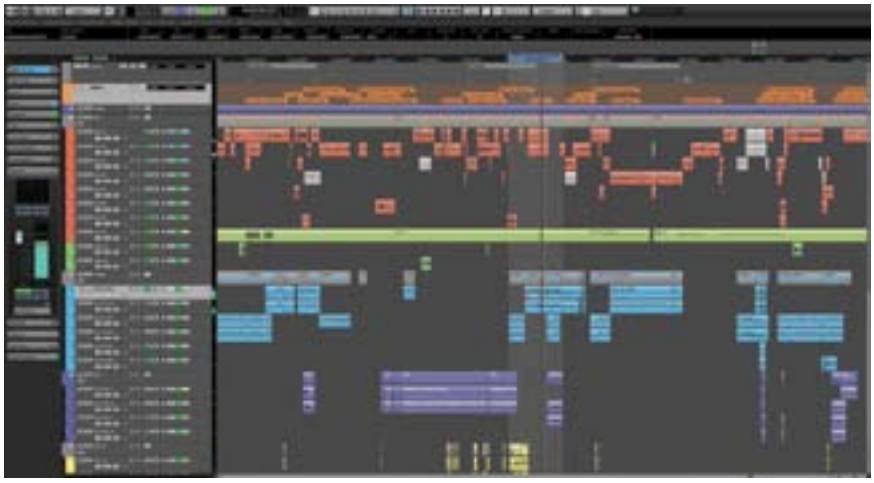


New plug-ins, the new loudness lane, ADR Taker, upgraded pitch and time processing, and more – just some of the new features in Nuendo 6.

plug-ins. Channel input and output routing are right there at the top of the mixer, and each channel features easily accessible (and more importantly, sonically useful) hi and lo pass filters, noise gate (with sidechain,) EQ, compression, envelope shaping, saturation, tape saturation, and a limiter – all of which can be rearranged in the desired order simply by dragging with the mouse. The new 'dynamic insert view' feature makes visible only as many inserts and sends that are actually being used in a project, while there are global bypasses for inserts and sends across the program – I hear a big 'hooray' from those of you supplying stems to dubbing engineers. Many of the mixer's functions can be accessed by key commands, and tracks can be located by typing in their names.

One of the many reasons I use Nuendo in my work is for its surround capabilities, and in version 6, these have been enhanced by the mitochondria – like inclusion of Iosono's Anymix Pro. Anymix Pro allows you to extract surround information from stereo files, and was reviewed as a separate product in the September 2012 issue of *Audio Media*. It's now part and parcel of the Nuendo package, and is accessible as a panner choice in the Mix window. I've been using this software a lot in conjunction with Nuendo 5.5 and it works beautifully on the right kind of material, extracting rear information from ambience in stereo files. It's also my panner of choice for bread and butter surround sound work – although Nuendo's superb Mixconvert is also extremely useful for downmixing. Nuendo 6 supports the newly introduced Auro3D surround format, along with all the other the usual multi-channel suspects. Another 'freebie' is Voxengo's CurveEQ, which includes EQ curve matching facilities – an extremely useful tool for use in Foley and ADR situations when you're trying to match the sonic nature of recordings from different locations.

Out Loud And Proud

Steinberg has also addressed the broadcast loudness issue in Nuendo 6. Its loudness metering and analysis features are a set of tools that help you keep track of overall loudness, so you can deliver audio at EBU-compliant levels. The Loudness range display updates the user on the overall dynamic of the signal, and there's also a peak warning algorithm if you're running too hot. The Loudness lane is a particularly innovative feature, displaying a loudness curve on a track beside your audio so you can see what's happening to the loudness of your audio over time – this is a great improvement on 'snapshot' metering, and I've wanted something like this for so long on a DAW that I can't tell you how happy I am to see it incorporated here.

Steinberg continues to add features that increase the efficacy of the program as an extremely useful tool for post production audio. The ADR Taker system allows you to use up to 32 marker tracks to spot those parts of a film you need to work on. Each marker can be given specific user definable attributes, such as a scene location, time, and the stage directions – and, as these are searchable, you can jump to the required marker in a jiffy. Markers can be exported in CSV or Excel formats, and Nuendo can also import EDL lists in both CMX3600 and CSV formats. Dialogue can be overlaid directly onto the picture via marker/cue lists, and there are several video and audio count-in features along with rehearse, record, and review modes.

Steinberg has also upgraded its pitch and time detection/processing tool, VariAudio, to version 2 – and very good it is too, with its new zPlane algorithm. New harmonisation tools make the creation of the voices of giant robots a doddle, and several tracks can now be edited simultaneously. If you have the NEK expansion pack, the pitch of your audio will follow the Chord Track too.

To have the ability to seamlessly collaborate on compositions and other audio projects using a DAW has been a dream since the early days of the Internet, so Steinberg's VST Connect SE is an interesting addition to Nuendo. Talkback and chat functions are available, along with video and audio streaming in real time. With fast interconnectivity on both sides, VST Connect SE could be an invaluable (not to say cost effective) tool for online collaboration.

No Horsing Around

I've always found Nuendo to be a stable DAW – even more stable than its stablemate Cubase (too many stables?) – though I've often put this down to the fact that I use few third party VST plug-ins. However, Steinberg appears to believe that you can never provide too much stability, so Nuendo 6 includes its so-called ASIO-Guard technology featuring 'intelligent dropout-prevention algorithms' – which sounds more like a tool to keep your kids at college than a way to keep your audio moving. Anyhow, it seems to work – Nuendo feels solid and stable, and I didn't have any issues with it at all, even when recording at low latencies on my now arthritic quad core Mac Pro.

MemZap isn't, as you may surmise, the technology put to good use in Michel Gondry's wonderful film *Eternal Sunshine of the Spotless Mind*, but instead a way to keep track of the hundreds of tracks, dozens of plug-ins, and multitudes of automation curves you'll probably be using on a project. MemZap allows the user to store exact positions and zoom factors within the project and jump to them quickly by defining individual key commands – and it works really well, reducing the amount of mousing around on large projects.

Also included in the version 6 package are 1.5GB of useful sound effects and a Remote Control Editor that is fully programmable, while also natively supporting the Avid System 5 MC, Avid Artist Series, Steinberg Houston, WK-Audio ID Console, Yamaha DM2000, and the Mackie Control DAW controllers. As a long-time user of the latter, I was extremely happy to see that Steinberg is continuing to support such old, yet useful, technology. There's also a new version of Steinberg's EuCon adapter for those using Euphonix's controllers. Finally, Nuendo now supports a Portuguese user interface – so 'Olá!' to over 250 million Portuguese speakers worldwide, all of whom are probably excellent post production engineers. What next? Welsh?

And In All…

As the feature set of the upgrade from Nuendo 5 to 5.5 was such a major improvement, I wondered what a whole integer upgrade to the program would bring. Flying cars? Jet packs? *The Simpsons*' fabled 'vocal enhancer' button? The updates to the mixer alone are probably worthy of that full point increase, bringing simplicity and flexibility into one of the most important areas of audio production. The addition of tools such as Anymix Pro, VariAudio 2, VST Connect SE, and the new ADR facilities are almost icing on the cake and serve to cement Steinberg's flagship (oh, hell) programme as an essential tool in the world of audio post production. I honestly can't imagine what else you'd need to record and mix audio for TV and film, produce surround mixes, and record and manage foley and ADR, and produce stems for dubbing theatres. And I suspect I'll feel exactly like that until the next version of Nuendo appears!

Information

Feature Set
- **New mixing console & channel strip**
- **Anymix Pro (IOSONO)**
- **ADR taker solution**
- **Fully integrated loudness measurement**
- **Voxengo Curve EQ**

Manufacturer
Steinberg
www.steinberg.net

Price Details
GB£1,388.00 (full version),
GB£203.00 (update from Nuendo 5)
GB£284.00 (Nuendo 6 + NEK update from Nuendo 5)
GB£203.00 (NEK full version) (all prices inc.VAT)

"Using the twotwo.6 in my studio was very impressive right from the start – clarity is what really comes across. It's a low distortion, clean, uncoloured tone, with fantastic stereo imaging."

Alan Branch

PMC twotwo.6

Two-way Active Nearfield Monitor

PMC has a new range of monitors called the "twotwo" series, a two-way active nearfield monitor using PMC's Advanced Transmission Line (ATL) bass loading technology and some rather clever in-built DSP. There are three planned models, numbers roughly respective of the driver size. The twotwo.5 and twotwo.6 are available now, while the twotwo.8 is still in development. I was let loose on the twotwo.6, and given PMC's reputation, it felt a bit like having someone special coming to stay.

Detail

The PMC twotwo.6 has a lovely black/blue finish housing, a set of custom made 170mm drive units, and 27mm soft-dome tweeters. These are powered by two Class-D power amps totalling 200W, with 50W for the tweeter and 150W for the bass unit. Inputs via the rear panel can be either analogue balanced XLR, unbalanced RCA jack, or digital via AES3 XLR connector, in addition to two RJ45 sockets – these connections transmit volume data and digital audio over standard CAT-5 cable, so only one twotwo unit needs the digital connection, while the other can be linked.

There are also development plans for an optional remote control unit that will use the RJ45 connector. This could be great for those seeking sonic purity via digital connections – the only volume control would be your audio interface. This would worry me slightly... some kind of direct volume control might be handy for emergencies?

The twotwo.6 also has a small two-line rear panel LCD display and four cursor buttons for DSP engine control. This is used for sample rate conversion (to the operational 24-bit/96kHz), crossover, user EQ options, and driver optimisation and protection, before converting back to analogue to feed the Class-D power amps.

A clever bit PMC's twotwo series is the ATL (Advanced Transmission Line) – a channelling of the sound through the cabinet in such a way that the bass driver remains at a constant air pressure, loading and extending the bass frequencies by the time it appears at the front vent. PMC developed a new doped cone for ATL; the cone's stiffness giving the least colouration whilst being able to control the air pressure for the ATL to work as designed.

Two Ways

The first thing that strikes me about the twotwo.6 is how incredibly thin and deep (364mm) it is – a large support will be needed. Orientation is horizontal or vertical. The cabinet has large soft rubber supports on each corner, neatly housed into the wood – these aren't just stuck on feet!

From the Manufacturer:

"The active twotwo series draws on PMC's history of accurate designs based around Advanced Transmission Line (ATL) technology, and combines it with sophisticated DSP to create a flexible nearfield true reference monitor for stereo or surround use, with the usual low distortion, extended bass, and consistent frequency response offered by ATL designs. Designed to be easy to plug in and use anywhere, even with a laptop, the twotwos accept balanced and unbalanced analogue connections (on phonos and XLRs) and digital input up to 192kHz, and can be used either vertically or horizontally with no effect on tonal accuracy or imaging."

Matt Bell,
Direct Red Media
(on behalf of PMC)

In Use

The twotwo.6 in my studio were impressive right from the start – clarity is what really comes across. It's a low distortion, clean, uncoloured tone, with fantastic imaging. I used them on two single mixes I had to complete – one being a softish ballad whilst the other had full-on rock out chorus sections. The twotwo.6 handled these really well. I found them a bit brighter than my usual Harbeth Expressions, but not harsh. It took a little while to adjust to, as does any speaker change, but when I took some measurements with an excellent new analysis software from Dirac, it showed a perfectly flat top end. Bass reproduction and mid-range was really enjoyable and nice to work with. Over a day's balancing, the twotwo.6 gave great results and a mix that translated well.

Adjustment via the DSP is useful for fitting the twotwo into an individual space. The HF shelf of 1kHz can be adjusted to fix stubborn reflections, whilst the 500Hz LF filter can help with small room boundaries and increasing low frequencies, although I would have liked to adjust the top end for my personal taste.

Conclusion

I enjoyed my time mixing with the PMC twotwo.6 monitors: great detail, power, and positioning; the DSP is a nice touch as are the digital connections, driven by some classy amplification. While playing a few test tones through the twotwo.6 speakers, I got the same impression as from a well-tuned engine: a really smooth performance with plenty of power.

Monitors are a personal choice in reality, and as a mix engineer I need a monitor that will effortlessly show up flaws, won't flatter a mix, and be unfatiguing. The twotwo.6 delivers exactly that and more. I like the look and workability of the twotwo.6 monitors, and the ease at which they slotted into my studio.

Overall the PMC twotwo.6 monitors were enjoyable to work with, and gave an accurate representation of the sounds I was working on. If only I could afford a pair!

Information

Feature Set

- Horizontal or vertcial mounting
- Advanced Transmission Line bass extension
- AES3 digital input 32-192kHz

Manufacturer
PMC – www.pmc-speakers.com

Price Details
GB£3,495.00 per pair (exc.VAT)

ALAN BRANCH is a freelance engineer/producer and ex-member of the On U Sound Crew. His long list of credits include Jamiroquai, Beverley Knight, M People, Simply Red, Depeche Mode, Shed 7, Sinead O' Connor, Bjork, and Sade. www.alanbranch.com

"The result is a system with excellent technical specifications, whilst remaining integral to a sense of clever, but very musically orientated design."

Ben Burns

DPA d:facto II

Supercardioid Vocal Microphone

In its present form, DPA Microphones has been manufacturing high quality microphones since 1992. Everything DPA releases now is manufactured in Denmark, and there are dealers in over 40 countries around the world. The company seems to be going from strength to strength. With a reputation for high quality professional products DPA microphones have been relied upon in live environments for some time. As one of the few manufacturers whose miniature microphone capsules sound good on a live stage and actually work well acoustically, DPA products are a go-to solution for close-miked orchestral strings for example. Vocal reproduction of West End casts is often via a miniature DPA mic hidden in a wig or costume, sometimes taking advantage of skull resonances to reinforce lower frequencies. The point is they are relied upon and sound great, with high gain before feedback even when there are many open microphones at the same time.

With pressure from 'fans' to produce a vocal microphone for traditional stand mounted or hand held music applications, DPA has spent several years developing the d:facto™ and its wireless accessories. With a range of DPA capsules to choose from, wireless options for just about any third party RF transmitters, and endorsees including Sting, d:facto certainly looks good on paper. If other DPA products are anything to pre-judge this microphone by, then the expectation is certainly high.

R&D

Taking a popular expensive German live vocal mic as a benchmark, DPA has spent several years developing a way to build something even more Germanic in its precision, mixed with plenty of Danish delicacy. The result is a system with excellent technical specifications, whilst remaining integral to a sense of clever, but very musically orientated design. Trying to get close to the sound of the excellent 4011 capsule but in a robust 'live' format was the ultimate goal.

Once a wired version of the microphone was created, engineers turned to wireless options. With no radio products of its own, DPA has cunningly supported all the major systems out there via a range of precision-engineered pre-amp adapters. The big challenge was creating a mic pre-amp able to supply 38 volts to the capsule without draining the radio transmitter's 3v or 9v batteries, remaining super hi-fi, and maintaining a very low noise floor. The wireless options also had to be the correct weight and size to make any sense when screwed onto a microphone transmitter body. Somehow DPA has managed to squeeze all the technology into the wireless options very elegantly indeed.

"For years, DPA has been asked to make a vocal microphone based on its legendary 4011 capsule. Most vocal microphones on the market add colour to the original sound. However, the majority of vocalists will actually benefit from a neutral microphone that allows them to take control and express their own voice. The flat frequency response curve, even at high frequencies, normally makes microphones very sensitive to feedback, wind, and pop. DPA has solved these issues with a flat phase curve and a new protection grid construction. With the state-of-the-art adapter system, the d:facto II can easily and at a very low cost be converted to wired or wireless mode – seamlessly integrating with many professional wireless systems."

Christian Poulsen, CEO, DPA

First Impressions

Let's be honest, if you pay the asking price for this microphone, you'd expect something of Rolls Royce quality to emerge from the extensive, well-padded packaging. DPA does not disappoint. The build quality and precision engineering is artful and obvious. The exactness of the machining is quite stunning, beautifully made in Denmark with obvious pride. For the purposes of this review, I was sent two products – the normal handheld version of the mic and the wireless option, to fit Shure UHF-R systems. Both of these microphones were fitted with 4018v capsules, the default super-cardioid condenser developed for this mic.

Resembling the Apollo space capsule, the guts are revealed after unscrewing the precision-threaded basket and pop shield. Once exposed, the capsule can then be unscrewed and swapped out for a number of options from the DPA range.

As with any precision instrument, you immediately feel that attention should be focused on keeping the mic scrupulously clean. The weight is just under that of 'the world's best selling microphone'. You can always tell when handling something of high quality, and the DPA de facto is no exception. Smooth in its finish, quite good thermally (freezing metal mics are not fun), and a balanced weight all help to give this product an edge. The frequency response is smooth and flat from a sloping HP filter around 100Hz up to a slight bump around 10Khz, adding a sparkle and some air to the sound, desirable in many vocal applications. The transient response is simply lightning fast, with every breath and slight movement of clothing captured in detail, along with stunningly accurate vocal reproduction. The off-axis response of the mic is actually very good, to a point. Once that point is reached (by holding the mic almost perpendicular to the source) the effectiveness of the super-cardioid pattern becomes apparent as the level drops sharply. Looking at a transfer function revealed a pretty flat phase response across the spectrum. Frequency response was also very flat, the slight bump at 10Khz showing clearly with a smooth curve.

Recording Vocals

In a studio environment, with a singer on headphones

THE REVIEWER
BEN BURNS is a live and studio engineer with credits including Mystery Jets, Darren Hayes and Grace Jones among many others.

and holding the mic to record some BVs, the DPA performed well. The singer liked using it, perhaps because I mentioned the 'impressive' retail price. As far as the sound we got from it, we all liked the quality. Right away we had to put a pop filter on the mic – despite a high pass filter at around 150Hz the plosives proved a little too much for the sensitive capsule. I tried to replicate this after the session and could not for the life of me get the same effect, so I put it down to the singer's excellent popping technique. As a directional microphone, the proximity effect was obvious but not as dramatic as one would expect. We used it to our advantage whilst recording some low pitch parts, which sounded full and round.

When compared to the large diaphragm mic we usually use, the noticeable differences were a faster transient response – although a small thin mic diaphragm is always going to be faster than one with more mass. Any background noise was reduced and the rich tonal quality was good. SPL handling is very good with this capsule, with published figures reaching 160dB(spl) before clipping – that's 747 take-off territory. With more time, some experiments recording loud guitar cabinets and drums would have been interesting.

Overall, this mic felt right at home in the studio, and although we used headphones you could just as easily record a singer using big monitors for 'vibe' and get a very usable take.

No handling noise was apparent at all – the capsule design includes a large rubber isolation device to eliminate any mechanical vibration or impact noise.

Live Vocals

With a limited amount of time to review the system, I only got one live gig out of the mics. We used the wireless version with a Shure UHF-R system to reinforce a female opera singer. The mic was stand mounted and did not move. Changing the heads on the body of the transmitter was easy, just as you would change any other capsule.

Comparing the quality of the audio with that of a beta 58 head and a beta 87a head revealed, as expected, the DPA does indeed reveal more detail than the Shure models. The feedback rejection was not as high as the dynamic 58, as expected, but very good for such a sensitive condenser. Compared to the beta 87a head, the DPA has higher gain before feedback, and a smoother, less grainy high end. Even when barking out of the stage monitors the sound was stable and required very minimal EQ. The reproduced quality was very nice indeed, impressive mainly perhaps because the performer was quite good – there's nothing quite as grating as a bad opera singer. The dynamic range of the mic easily handled this rather petite but powerful lady, with distances ranging between 0.5–1 metres between the source an microphone. The gig was an outdoor event in England, which means lots of rain and miserable temperatures. Traditionally, condenser microphones don't like moisture much, but the DPA seemed to handle the high humidity and a dripping stage roof well (we were careful to keep the mic dry). Overall, the DPA did a great job sonically, whilst technically we didn't notice anything unusual with the radio system – even battery life seemed the same. As with any radio mic set-up, getting the gain structure right at the transmitter is key to a quality signal – as most radio systems use some form of compression/expansion, a bit like the analogue noise reduction systems of yesteryear.

The wired version of the mic sounded the same as the wireless, perhaps with a little more dynamic range when scrutinised in headphones, but in the wind I defy anyone to tell the difference through a PA. The wired mic ships with a special clip, although we had no problems using a 'standard' clip to save time. I would be very interested to hear this mic indoors at a venue, preferably one with less than desirable acoustics**…** so just about any venue then.

Being such an accurate mic means less EQ is required to deal with resonating feedback frequencies than you might expect. Subtle cuts of 2 – 3dB are adequate to stabilise most threats. We found that inverting the polarity tended to shift resonances upwards, enabling EQ cuts to be performed on a choice of frequencies to stabilise the sound more naturally.

Options

The available capsule options are on the excellent DPA website, which include a very nice 4006 omni and, interestingly, a shotgun capsule (4017). You can use any of the modular capsules if you like, expanding the versatility of the mic far beyond any other product of this type. On the radio compatibility front, pre-amp/adapters are currently available for Shure, Sony, Lectrosonics, and Wisycom. Support for most Sennheiser systems including the 5000 and evolution series will be available by the end of April 2013. Being able to put any compatible DPA capsule you like on a radio mic system of your choosing is a novel idea. Tailoring the capsule to an application opens some new possibilities – perhaps you want a wireless shotgun mic for a football match or crowd noise for example.

Conclusion

Thanks to the mind-boggling array of digital technology that has been developed for the industry, today's audiences, artists, and management all expect gigs to sound as good or better than the record. Manufacturers over the last two decades have produced some stunning products, which are eagerly set up in acoustically appalling concrete boxes with zero acoustic treatment, but that's another issue**…** The developments in PA technology have enabled us to hear enough detail in the sonic landscape to warrant microphone selection based on technical and artistic grounds, at least in some cases. So the humble microphone is the last area to get updated, as it were. With many engineers swearing by the '58 for the last 30 years, it is interesting to see these 'posh' premium products gradually gaining fans in the live sound fraternity. This is not without reason. Grab a bunch of used dynamics and simply compare them next to each other to hear obvious differences – you may be shocked at the inconsistencies.

The importance of selecting a microphone that's going to work for the needs of any given artist, as well as the engineer(s), is paramount. You would not want to take this microphone to a sandy beach party, nor a filthy beer throwing punk gig, nor the local open-mic hip-hop night etc, etc. If you work for a Nora Jones-type artist however, the results are going to be stunning. Sting is using the d:facto on tour right now, having purchased four of them. So it would seem that although it's a sensitive condenser mic, the d:facto should stand up to some reasonable stage volumes and still be effective in isolating a great vocal performance. There is some choice in this market, with similarly priced products available from several manufacturers. The price is the only drawback I could find with the product; but it's not outrageous when compared to the competition. DPA's d:facto has some unique features and a sonic quality that's as good as it gets. You would have to line this mic up for comparison against other similar products to make an informed choice, as again, it's about pairing the application with the product. Get the pairing right with this mic, however, and you really can't go wrong.

Information

Feature Set
- **20Hz-20kHz frequency range**
- **160dB SPL handling**
- **Wireless system adaptable**
- **Variety of capsules available**

Manufacturer
DPA Microphones
www.dpamicrophones.com

UK Distributor
Sound Network
www.soundnetwork.co.uk

Price Details
GB£660.00 (exc.VAT)

"It is possessed of an almost chameleon-like ability to adapt to different working situations..."

Nigel Palmer

Dave Hill Designs **Titan**

Analogue Compressor Limiter

Dave Hill is an audio designer equally at home with both the technical and the creative. Both through his Crane Song and Dave Hill Designs companies, and as a recording engineer/producer, he's pursued a unique ethos since the 1970s from his US base. He's contributed to successful products from other manufacturers along the way, and also carved his own niche with offerings such as the Crane Song Ibis equaliser and Avocet monitor controller. Dave Hill products certainly have a 'made to be used' feel to them, and a new product from the Hill stable is worth more than a cursory glance: early reports of the digitally-controlled analogue Titan compressor suggested it might have a range of uses, so I sought it out with interest.

Overview

The Titan is a 1U single channel unit, with link facilities to control a second Titan for stereo operation. To the rear of the robust steel box are audio connectors on XLR, together with mains in and a multi-pin socket for the provided link connector. The black front panel has a power switch and a colour LCD display showing operational parameters, and then two sets of rotary encoder knobs. These are firstly the 'Standard' controls in a distinctive blue-green often used by Mr. Hill: Threshold, Attack, Release, and Shape – the knee or stiffness of compression which, together with the threshold, control the compressor's ratio – and up to 11.5dB of Gain. T, A, R, and S have ranges of 0-99 displayed on the LCD, so no dB or other typical measurements here. No bad thing, as you're encouraged to use your ears to decide what works best.

The second set of switched knobs in red control the colour parameters: these are VCA Color, Parallel Mix, and Dynamic Color, and include a Fat/Air switch. VCA Color enables the user to run the compressor either in a clean PWM (Pulse Wave Modulation) mode, or a more coloured diode-based Vintage style, or a mixture of the two. The red encoders rotate freely with extremes next to each other, so you can jump between with a single click. Parallel Mix offers parallel compression where some compressed signal is mixed into the direct sound for a fuller effect that tends to raise lower-level passages: although any compressor can do this with an outboard matrix, it's good to see the facility built-in. It's not a technique I reach for often, but once in a while it may be just the ticket. Moving on, we come to Dynamic Color, which generates reverse-phase harmonic content and has the effect of making the sound appear bigger by expanding transients and compressing the wavform; this effect only occurs while gain reduction is taking place, and can be effective on a variety of sources. Last in the colour section is the Fat/Air switch: these modes create, respectively, a low and high frequency lift to the audio, again during gain reduction, and are affected by the current attack and release settings.

Rounding off the unit's facilities are a Link/In/Out switch and a meter switch, which determines whether gain reduction or level is displayed. The meter is above the Standard controls, and provides good visual feedback: for example, increasing amounts of Dynamic Color will show with a greater number of LEDs.

In Use

As usual when trying out a new piece of equipment, I played a range of material through the unit to get a feel for how it worked. In PWM or the warmer Vintage mode, with the other colour controls at neutral settings, I was rewarded with what must be one of the nicer-sounding compression profiles I've heard. The Standard control set behaved much as expected, and though it took a short time to mentally reconcile the control scales, I was got some very usable results. I would often find several settings for a given situation – a nice position to be in.

Parallel mix was fun to use: with a fast attack, release tailored to the material, and plenty of gain reduction it wasn't difficult to dial in a blend of compressed and straight-through audio for controllable fattening or pumping effects, and I felt that with a parallel facility as quick to try out as this I might use it more often. Dynamic Color and Fat/Air added their own distinctive colouration and thickening to the sound, reminding me of the kind of effects I can achieve with the digital valve and tape processing on my Crane Song HEDD converters, which I've no doubt are related.

Conclusion

The Dave Hill Designs Titan can be quite a 'deep' unit. It is possessed of an almost chameleon-like ability to adapt to different situations, and whether in a recording, mixing, or mastering context it has much to offer. It's a compressor like no other, and it gets an enthusiastic 'two thumbs up' from me.

From The Distributor:

"Dave Hill continues to push the envelope (excuse the pun) when it comes to audio processing. Utilising the modern concept of digital control of analogue, Hill has produced another processor that is utterly unique in the market place. Able to produce very subtle and very brutal types of compression, it does not seek to re-create or model existing units (how refreshing!), rather, provide the professional user with a highly controllable and wildly variable sonic palette. Dave Hill is the master of innovation, and any time he announces a new product, audio professionals lick their lips!"

Keith Malin,
KMR Audio

Information

Feature Set
- Digitally controled analogue compressor
- Stereo link connections and switching
- Standard controls, plus PWM/vintage colour section
- Switchable parallel processing

Manufacturer
Dave Hill Designs – www.davehilldesigns.com

Distributor
KMR Audio – www.kmraudio.com

Price Details
GB£1,200.00 (exc.VAT)

THE REVIEWER
NIGEL PALMER has been a freelance Sound Engineer and Producer for over 20 years. He run his CD mastering business, Lowland Masters (www.lowlandmasters.com) from rural Essex where he lives with his family and two dogs.

"I found the pre-amp section to be the best part of the ADL 700: incredibly musical, clear, and versatile."
Rob Tavaglione

PreSonus ADL 700

Channel Strip Mic Pre-amp

The ADL 700 channel strip-type processor utilises the same three triode-based, Class-A, discrete tube mic amp (co-designed with Anthony DeMaria) found in PreSonus' ADL 600 with a 12AT7 and two 6922 tubes, and high-voltage rails (+/-300V). This high gain pre-amp (65dB, 75dB with Master gain) has stepped gain control (in five dB steps) along with a variable -10 to +10dB trim, continuously variable high pass filter (20-200Hz), line level input, quarter-inch DI input, multiple impedance settings, and a -20dB pad.

I found the pre-amp section to be the best part of the ADL 700: incredibly musical, clear, and versatile. Driven hard, this pre-amp will lightly break up and distort mildly at first, but jump right into over-saturated valve glory when slammed. 'Clean and beautiful', though, is this pre-amp's forte, especially with the flexible impedance settings.

Compressor

After the pre-amp, PreSonus' Master Designer Robert Creel takes over, starting with an FET-based compressor. It offers an abundance of low ratios, starting with 1:1, reaching 2:1 at half-pot travel and maxing out at a conservative 4:1. Continuously variable attack and release times are offered, along with make-up gain; and the comp can be placed before or after EQ.

After warming up to the compressor (I first found it a little 'barky') I discovered it has both ample controls and options. I also soon realised that low ratios are where this section is most comfortable; even at 2:1, I had to watch my attack times and threshold very carefully. Yet at lower ratios (such as 1.25:1, my favourite on the ADL 700), users can lower the threshold significantly, tweak attack and release to musical taste (with more flexibility), and get an invisible, balanced, and full sound that really complements the musical mic pre.

Features: Equaliser

The EQ section presents four frequency bands. Low and High have the choice of bell or shelf, while the two mid bands are gently sloped, low Q (0.55) bells. Frequency selection is continuously variable, with slight overlapping bandwidths and +/-16dB of gain. This bypassable EQ can be placed before or after the compressor.

The wide, forgiving Q is helpful at gentle shaping, but for notching out troubled frequencies, tighter Qs would have been more useful. I didn't use the EQ for boosting, but for pulling out frequencies I did appreciate that the EQ can be placed before the compressor, allowing for a smoother tonal balance and kinder compression reaction – a very nice option to have.

From The Manufacturer:

"The ADL 700 is a top-of-the-line, tube-driven channel strip that integrates a single channel of the award-winning ADL 600 Class A tube preamplifier with a custom-designed FET compressor and a custom, four-band, semi-parametric EQ. With independent Mic, Instrument, and Line inputs and an astonishing 10Hz to 45kHz frequency range, the ADL700 delivers stunning, high-end sound and incredible versatility."
Daniel Keller, PreSonus

In Use

The ADL 700's master output offers a wide gain range: -80 to +10dB. There are transformers at both input and output, with a Cinemag before the pre-amp. I/O is via XLR (mic or line), with a quarter-inch DI on the front panel. The single VU meter monitors either output level or gain reduction, with a -6dB setting that helps prevent 'needle pegging' when viewing a hot output.

The unit pleased most every client who had the opportunity to use it in session here at Catalyst. In particular, vocalists seemed to love it, citing clarity, presence, and even preference over my usual premium signal chain – generally Chandler Limited, Manley Labs, and Neve components. I valued the 700's gradual tube break-up and impedance versatility. However, one regular client in particular didn't like the ADL 700's sound: an opinionated classical pianist who has a discriminating ear. His criticism was mainly that he thought the EQ was too high-mids focused, and overall, the unit translated too much bark from the source, with not enough clarity for his taste. As such, he preferred my usual signal chain.

Summary

Overall, the ADL 700 is a fine sounding unit that excels with versatility and flexibility. It is crowned by a stellar mic amp, bolstered by a powerful compressor, and only slightly hampered by a semi-parametric EQ (I'd personally prefer fully parametric).

The ADL 700's market placement is clear – a prime entry into world-class channel strips, featuring performance that approaches the best of the best, though at half to two-thirds the cost of the competition.

Information

Feature Set
- 2U 19-inch rack mountable steel chassis
- One unbalanced ¼-inch instrument input
- One transformer-balanced XLR line/mic input and line output
- High voltage, all-tube, Class-A dual-transformer design
- Variable mic input impedance
- Eight position gain switch
- Full variable FET compressor

Manufacturer
PreSonus – www.presonus.com

UK Distributor
Source Distribution –www.sourcedistribution.co.uk

Price Details
GB£1,949.00 (inc.VAT)

ROB TAVAGLIONE has owned and operated Catalyst Recording in Charlotte NC since 1995. catalystrecording.com

Test & Measurement and Quality Control

By KEVIN HILTON

Test and measurement is an integral part of broadcasting. Broadcast engineers have always strived to produce the best possible pictures, but as domestic television sets become more sophisticated viewer expectation has increased. From analogue to digital standard definition and now digital high definition, with 3D and Ultra HD on the sidelines, today's TV vision technology is more sophisticated and so needs comprehensive checking and monitoring to ensure that quality is as good as it possibly can be, from the broadcast centre to final transmission and reception at home.

An Essential Process

File-based production and tapeless operations are now becoming the norm, but not only is T&M essential, much of it is still carried out using hardware equipment that is not much different to what was used for the same purpose back in the earliest days of broadcasting. Cameras and other gear need to be set up and measured to check whether it is working within the correct parameters.

This is usually done using an oscilloscope, the workhorse of T&M that has been developed into variations on the original concept to produce more specialised devices. The oscilloscope itself enables varying signal voltages to be observed. Typically this is as a two-dimensional graph of one or more electrical potential differences, with the vertical, or y-axis, as a function of time. The most common role of an oscilloscope is to monitor the exact wave shape of an electrical signal. Originally oscilloscopes had cathode ray tube display screens and were known as CROs (cathode-ray oscilloscopes). Digital technology has now been applied to these devices to produce DSOs (digital storage oscilloscopes).

More specialised versions of the oscilloscope include waveform monitors and vectorscopes. The waveform monitor is usually used to measure and display the level – or voltage – a video signal possesses in relations to time. The monitor can both show the general brightness in a video picture, and focus on specific lines in the signal. The device is used for a variety of practical purposes in broadcasting: calibrating video cameras, and lining up multiple cameras at a single location so the same results will be obtained when one scene is shot under the same conditions from different angles; for assessing material loaded into video production systems, such as colour correctors; monitoring video signals to ensure it does not breach specifications for colour gamut or transmission limits; diagnosing any problems with equipment within TV studios; and setting up equipment during the installation of a facility, as well as for the final commissioning process. T&M also plays a vital role during the R&D and manufacture of new products.

"While T&M remains a critical procedure, in all senses of the word, today it is no longer seen as a stand-alone process taking place away from other parts of post-production and distribution."

For more specific measurement a vectorscope is able to visualise the chrominance – colour information – encoded in the video signal, as opposed to the more overview approach of a waveform monitor. Many modern waveform monitors incorporate a vectorscope function and are able to present the two different readings simultaneously. Another advance in oscilloscope design in general is the move away from CRT technology. New waveform monitors are now based on a rasteriser – graphics hardware that emulates the characteristics of a CRT vector read-out by generating a raster signal. Displays are now usually flat-panel liquid crystal screens, or units are connected a to VGA screen.

A Multi-Pronged Approach For Multi-Purposes

T&M has always had a clear purpose and position in the broadcast process to guarantee quality of service and experience for the viewers. In today's multi-channel TV world, with channels and streams going to a wide range and number of delivery platforms, multiple methodologies – both hardware and software – are needed to ensure that programmes and the equipment used to make them, whether it is in real time using hardware or file-based with software, complies with established standards and practices.

The 9K Series.

GLOSSARY
T&M and QC

Test and measurement (T&M) is among the longest established and most necessary of operational routines in broadcasting. Quality control (QC), also known as quality assurance (QA), is a more recent term and procedure but of equal importance. The two are inextricably linked but are not the same. T&M covers the engineering process for analysing the performance of equipment, ensuring it is running within expected parameters and that all components are connecting and functioning properly. QC/QA is the operational practice that relies on T&M gear to check programme material complies with broadcast distribution and transmission standards.

TECHNOLOGY NEWS
EBU on QC

The European Broadcasting Union (EBU) Strategic Programme on quality control has identified four main application areas for QC: ingest, legacy archive transfer to files, final programme delivery, and programme exchange. The EBU has held workshops and meetings to discuss some of the major issues in this sector: why QC is important, how to perform QC on media files and their content, end-to-end QC integration, the top 20 QC checks to make, and the future of automated QC – what can we expect to come?

While the EBU has debating these big questions, a number of European broadcasters, including the BBC, have made it clear they would like to see QC carried out at post-production facilities, rather than later in the chain. In the UK the Digital Production Partnership (DPP) is looking at this way of working becoming part of its standards for the production and distribution of programmes. Formed by the BBC, ITV, and Channel 4, the DPP's guidelines will cover both tape and file-based video formats and be followed by UK broadcasters including Sky, Five, S4C, and UKTV, as well as the founding members.

The DPP has issued a statement saying it "hopes to achieve industry-wide collaboration with broadcasters and QC tool vendors, industry-wide standards for QC reporting, tests and terminology, and best practice sharing among broadcasters. The DPP is currently working on a set of guidelines for suppliers that will include an agreed high-level workflow for automated file-based QC, an agreed list of required tests and tolerances based on AS-11 standards."

AS-11 is an open subset of MXF (Material eXchange Format), which is used to deliver completed programmes as files from the production company or distributor to broadcasters. The DPP is basing its standards on AS-11 and other formats set out by the Advanced Media Workflow Association (AMWA), and is aiming to introduce guidelines for QC in 2013.

Neil Hatton, Chief Executive of London post house Azimuth, sits on the DPP Technical Standards Committee representing UK Screen, the trade organisation for facilities and producers in the TV and film industries. Hatton sees the proposed new set-up as a "good move", which could break the de facto monopoly held by T&M equipment manufacturers favoured by the big broadcasters. "But we will have to be a little bit careful to see where the ultimate responsibility and liability lies, either with the post facilities or the broadcasters," he says.

Hatton comments that automated, file-based T&M processes will play their part in any QC system, but that human judgement – using eyes and ears in conjunction with calibrated monitors and properly set-up loudspeakers – is still the only way to check for certain parameters, such as whether captions are in the safe area.

While T&M remains a critical procedure, in all senses of the word, today it is no longer seen as a stand-alone process taking place away from other parts of post-production and distribution. The expectation is for T&M capability to be part of mainstream A/V monitoring devices, carrying out the same checks as material passes along the broadcast chain. Among the demands made of T&M are to include diagnostics for MPEG video transport streams to other monitor systems.

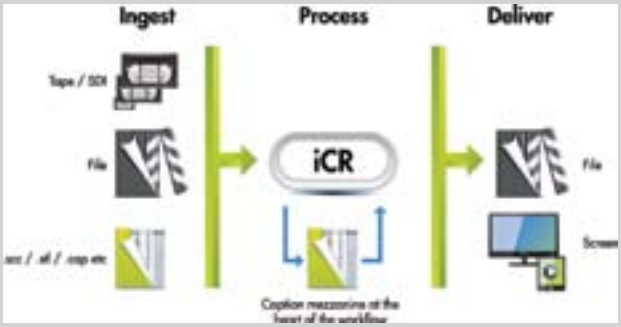
This is important in file-based situations because encoding and compression technology is not a lossless process. Another potential problem area is files going through processes that could affect captioning or other ancillary data. Because of this baseband – or composite video, using an analogue waveform – T&M devices play a part in monitoring during ingest, as well as acting as a double check while editing and play-out takes place.

Traditional T&M equipment is now supplemented by specialised software to perform specific QC functions. These use test and measurement principles to perform checks on file-based material during the transmission process. Modern T&M equipment is installed in post-production and production facilities to assess material; the same measurements are required when it reaches the transmission phase but in a different way. In multi-channel play-out some services may not have the budget for full time operators to run the systems, so they rely more on automation with built-in QC features to produce good results.

Although today's T&M devices – whether in hardware or software form – are extremely powerful, at crucial points in the production chain they still should be controlled by experienced operators, who can spot when a picture is bad and differentiate between intended artistic effects and objectionable artefacts, filtering out false positives that can be hard to avoid in automated tool sets. Ultimately a good set of human eyes and trained judgement goes a long way. The technology is there to help confirm and identify the specific fault. AM

"Although today's T&M devices – whether in hardware or software form – are extremely powerful, at crucial points in the production chain they still should be controlled by experienced operators…"

PRODUCT NEWS



File-based QC, ingest, and transcoding developer Amberfin is to demonstrate a new version of its iCR software suite that adds new features to meet recently introduced US FCC (Federal Communications Commission) regulations stipulating that all broadcast TV video material has to have captions when distributed using IP.

The iCR range comprises ingest (encoding), transcoding, and play-out components; and is designed to provide a full workflow for broadcast production. In designing the new feature Amberfin worked with caption specialist Softel, integrating its Swift vTX with iCR. The combination is able to transcode a variety of media formats and produce subtitles, captions, and supporting data to the correct specifications.

Commenting on the enhancements for iCR, Amberfin's Chief Executive said, "Recent FCC regulations indicate a worldwide trend towards regarding captions as a critical element of the OTT discussion. However, captions rarely increase the revenues of broadcasters or content owners. They are an add-on service that is in many cases required by law. We are entering a world where multi-platform delivery to broadcast, VoD, and web streaming channels now also require captions and subtitles by law. Unfortunately, the traditional captioning workflows that go around the outside of the main workflow are now too expensive and time consuming to justify when the number of platforms is growing and the number of viewers per platform is inevitably diminishing."

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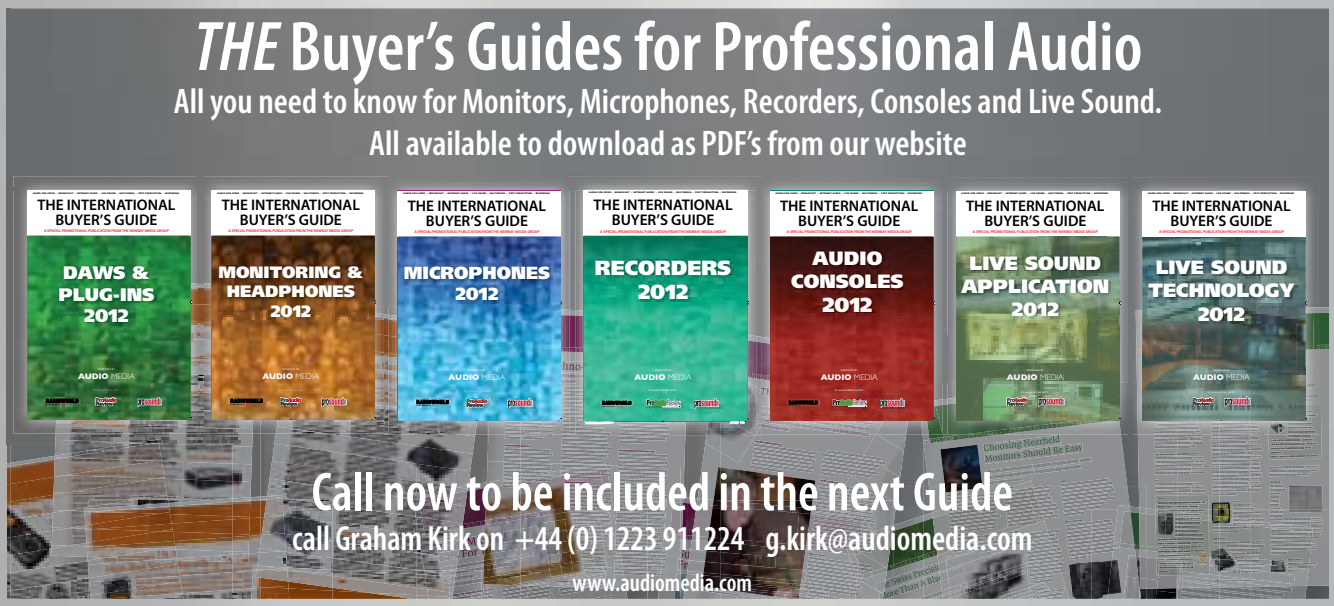
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Quatermass

KEVIN HILTON

The trend for turning much-loved old TV programmes into films shows no sign of slowing, despite usually lukewarm critical and audience reaction. Long before the current small screen-to-big screen boom there were some notable crossovers, including *Quatermass* and *The Pit* (1967). This adaptation of Nigel Kneale's 1958-59 BBC serial had almost the same scare factor, again carried as much by unnerving electronic sounds as the special effects of ancient Martian insectioid beings rising again to conquer Earth.

Writer Nigel Kneale's enduring character, fallible rocket scientist Professor Bernard *Quatermass*, made his debut in 1953 with *The Quatermass Experiment* and returned two years later in *Quatermass II*. The potential of both serials as feature films was spotted by a then minor studio and production company that had been established in 1947. The name Hammer Films did not mean much at the time, but when it picked up the rights to the first Quatermass story and released it as *The Quatermass Xperiment* in 1955, the company reinvented itself as the UK's house of horror.

"The main use of electronics in Quatermass... was the violent shaking, vibrating sound that the 'thing in the tunnel' gave off. It was not a terribly challenging sound to do."

David Huckvale

Both *The Quatermass Xperiment* and the subsequent *Quatermass 2* (1957) were scored by Hammer's in-house composer, James Bernard, giving the stories specifically written musical accompaniment for the first time. The first two BBC serials featured recordings of Holst's *Mars – The Bringer of War* as the opening theme; library music, much of it by Trevor Duncan, the pseudonym of BBC engineer Leonard Treblico, was used elsewhere in the episodes.

Treblico's work also featured in the third BBC serial, *Quatermass and the Pit* (1958); although the programme credit is for music "specially composed by Trevor Duncan", the tracks once again came from library recordings. Even though these were not written specifically for *Quatermass*, Treblico/Duncan still had space and the unknown in mind, giving his pieces titles such as *Mutations, Escape Velocity,* and *Cosmic Rays.*

More significant was the contribution of the BBC Radiophonic Workshop, which had opened officially in May 1958, just as *Quatermass and the Pit* was going into pre-production. The series was the first major TV drama to feature electronic sounds from the new department; according to the viewing notes accompanying the BBC Quatermass box set, Kneale specified noises including: "quick glunks, with build-up", "droning pulse into bell and into deep vibration", and "Martian crowd chatter".

These were realised by Desmond Briscoe, assisted by Dick Mills. The sound of the alien creatures is the stand-out effect, an insistent, deeply unsettling chattering underpinned by electronic drones that accompanies scenes of ancient telekinetic power unleashed from the space capsule discovered during building work in Knightsbridge. Viewers had never heard anything like it.

A Decade In The Making

Hammer took almost ten years to get round to making a feature version of this serial. Directed by Roy Ward Baker, *Quatermass and the Pit* (1967) had a script by Kneale himself and starred Andrew Keir as the professor. The story is mostly faithful to the original; a major change was the initial discovery of ape-man skeletons being made during excavations at an Underground station, Hobbs End.

Palaeontologist Dr Matthew Roney (James Donald) is convinced the fossils are much older than any previously found remains of man's ancestors. Quatermass becomes involved when a mysterious capsule is discovered. Insect-like creatures are revealed inside, convincing Quatermass the object is of extraterrestrial origin. Efforts to further investigate what turns out to be a Martian spacecraft result in chaos throughout London, with the majority of its inhabitants reverting to their trace alien roots and attacking those of more human background.

Unlike for the TV version, the conventional music score and special electronic sound were created by one person, Tristram Cary. He wrote both orchestral and electronica music – including for later episodes of *Dr Who*, although he was never a member of the Radiophonic Workshop – and went on to work with Peter Zinovieff at EMS, manufacturer of the first British synthesiser.

In David Huckvale's book *Hammer Film Scores and the Musical Avant-Garde*, Cary is quoted saying he "was not mad" about doing the film because Hammer asked for "masses of electronic material and a great deal of orchestral music". He took the commission to pay the school fees of his three children, but did not seem overly enthusiastic about his contribution: "The main use of electronics in *Quatermass*... was the violent shaking, vibrating sound that the 'thing in the tunnel' gave off. It was not a terribly challenging sound to do."

This sound is a parallel of what Briscoe and Mills created for the BBC version and, like that, is more a sound effect – conveying panic and the terrible otherworldly power of what the space ship brought to Earth. Other sections of Cary's electronic soundtrack are more like his experimental compositions and can be legitimately classified as music. These have a definite thematic progression, but also serve the purpose of giving a 'voice' to the mostly unseen, extraterrestrial terror that has been unleashed in London.

These reach their climax at the end of the film when a giant alien – looking like the modern conception of the Devil – rises above the city. The being is formed from energy, leading Quatermass and Roney to conclude that earthing the apparition is the only way to defeat it. As Roney scales a crane the electronic sounds and wind noise rise to almost unbearable intensity before the scientist manages to swing the arm at the creature.

The resultant electrical explosion leads to silence, punctuated by distant emergency service sirens. These sounds are familiar and give the impression that some state of normality has returned. But Quatermass knows that, with aggressive alien emotions deep inside many people, life can never be the same again.

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– Al Schmitt
(Barbra Streisand, Ray Charles, Quincy Jones, Madonna)

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– Chuck Ainlay
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– Daniel Lanois
(Peter Gabriel, U2, Bob Dylan, Emmylou Harris, Robbie Robertson)

"With Recoils, when I listen to my recordings elsewhere, the results are more like what I hear when I record."
– Ed Cherney
(The Rolling Stones, Bonnie Raitt, Jackson Browne, Eric Clapton)

"With Recoils the low-end is more defined and I hear fundamentals that I never thought were there. Recoils brought new life to my nearfields—they have never sounded so good!"
– Bil VornDick
(Bela Fleck, Alison Krauss)

"It really is amazing what a simple little thing like the Recoil Stabilizers can do to a system. Suddenly everything got clearer, punchier and more solid."
– Frank Filipetti
(James Taylor, Foreigner, The Bangles, Elton John)

"The Recoils cleared up a cloudiness in the bass and mid bass that I had been battling in my studio. This is an affordable and very effective problem solving product. I love these things!"
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(Ziggy Marley, Melissa Etheridge, Kobi Mo', Jewel)

"Using the Recoil Stabilizers gave a noticeable improvement in sound, the bottom end is tighter and mixes sound more defined."
– Dave Stewart
(Eurythmics, Stevie Nicks, Tom Petty, Bono, Mick Jagger, Jon Bon Jovi)

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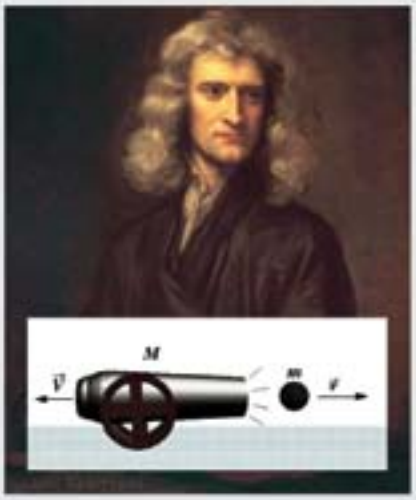
...Had Newton been an audio engineer, he would've used Recoils!



You've bought your new monitors, you put them on your desk and start to mix. However when you listen in your car or on other systems you notice that your mixes are not translating well – they don't sound the same as they did in your studio. Why?

Newton's third law of motion states "Every action is accompanied by a reaction of equal magnitude in the opposite direction."

Your loudspeaker works like a piston, constantly pushing and pulling air as the cone is thrust back and forth. The same energy that pushes against the air also vibrates into the desk, causing resonance. This 'comb filtering' effect makes it difficult to mix as it amplifies some frequencies and cancels out others.

Some would say "just isolate the loudspeaker from the desk with a foam pad" but by doing so, you introduce a new problem—your speaker is now swaying back and forth unhindered on the foam, just as Newton said it would. Energy that could be producing a crisp kick or accurate bass is dissipated into the foam and is lost.

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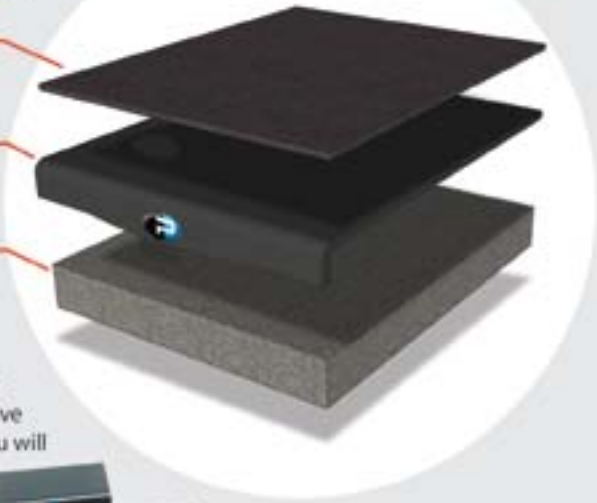

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*Patent pending

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